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## Defining Scaffolding In The Context Of Specific Learning Difficulties

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**Defining Scaffolding in the Context of  
Specific Learning Difficulties**

**Doctor of Education (EdD)**

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## **Abstract**

This study is an investigation of the ways in which teachers in a special school for children with specific learning difficulties support the learning of children in this context. This thesis questioned the utility of the 'scaffolding' metaphor in the context of Specific Learning Difficulties and sought to redefine the metaphor for the teaching of atypical children. This was because of the nature of learning difficulties. A second aim of the study was to determine whether there were qualitative differences in the teaching strategies employed in Mathematics and Guided Writing lessons during 'Speaking and Listening' when novel tasks were introduced. Observations were carried out during eight Mathematics lessons and five Guided Writing lessons. Although the metaphor that best captures a sense of shared competence and permanent support at a basic level remains open to discussion, this research has succeeded in highlighting some ways in which teachers engage children and foster learning effectively. Qualitative analysis of the data revealed that teachers supported children in these contexts by 'creating an effective learning environment'. This was achieved in three main ways: the mutual construction of knowledge, the negotiation of failure and teacher mediation of the learning environment. Differences in teaching approaches did emerge between Mathematics and Guided Writing lessons. In both curricular areas there were examples of all three forms of support but important differences emerged in their nature. The implications of these results for theory and practice are discussed.

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## **Chapter 1: The Literature Review**

### **Introduction**

This thesis aims to determine what forms of "scaffolding" take place in Specific Learning Difficulties (SpLD) classrooms and whether there are differences in the way English and Mathematics teachers scaffold the learning of children with SpLD. It also questions the appropriateness of the 'scaffolding' metaphor in the field of Specific Learning Difficulties. To provide a theoretical background to this project, this chapter presents a critical review of literature that has considered the nature of teaching and learning within different contexts and also in relation to special education and specific areas of the curriculum. In Section 1, SpLD is defined and the issues it raises for scaffolding are discussed. In Section 2, the views of different researchers on 'scaffolding' and its links with Vygotsky's (1962) notion of the Zone of Proximal Development (ZPD) are discussed. Section 3 critically reviews relevant empirical work into the Scaffolding construct, and Section 4 refers to research studies associated with the role of language and communication in effective scaffolding. Two major theoretical themes which relate to the scaffolding of new knowledge are introduced. These are: a) Elicitation of a child's interest and b) Assisted Performance leading to Shared Understanding. Section 5 relates to research studies directly linked to scaffolding in the field of Specific Learning Difficulties. Section 6 discusses self esteem in relation to specific learning difficulties. Section 7 presents an evaluation of 'scaffolding' in the context of specific learning difficulties.

Section 8 evaluates the relevance of subject knowledge to teaching in SpLD contexts and finally, Section 9 summarises the earlier sections and concludes with the research questions that have arisen from this review.

### **Specific Learning Difficulties (SpLD)**

Children with specific learning difficulties, although able in many respects, show a specific inability to acquire fundamental learned skills, such as:

"reading, writing, understanding mathematical concepts, co-ordinating and controlling their physical movements, controlling their attention or understanding subtle social and linguistic cues." (Wood, Sheehy and Passenger, in press).

Whilst children with low IQs (Intelligence Quotient: the ratio, commonly expressed as a percentage, of a person's mental age to his or her actual age) have obvious learning difficulties because their potential to learn is low, children with specific learning difficulties frequently underachieve because they have a variable profile of ability, performing well in some areas but badly in others. The conditions which most commonly impact on children's achievement include` dyspraxia, dyslexia, dyscalculia and attention deficit hyperactivity disorder (ADHD).

Dyspraxic children typically exhibit poor fine and gross motor function, have weak muscle control, are clumsy and have poor handwriting. Reversal of letters and syllables can be evident in written work and in reading (Thomson and Gilchrist, 1997). Dyslexic children are typically poor spellers, find learning to read difficult, are poor at sequencing activities and have poor

short term memory (Hornsby and Shear, 1994). Although 'dyscalculia' suggests a problem solely linked to Mathematics, Miles, (1992) suggests that language and mathematical difficulties often co-exist. Children with this condition frequently experience problems with learning tables, recognizing mathematical symbols and sequencing. Children with ADHD experience difficulty in attending and remaining on task during lessons. They frequently lose items, are forgetful (Chinn and Ashcroft, 1993) and easily distracted (Thomson and Gilchrist, 1997). Of the different forms of SpLD that exist, dyslexia and ADHD are currently the two most likely to be formally identified by educational psychologists and are therefore over represented in formally diagnosed SpLD populations and specialist schools. Consequently, the attentional and memory difficulties that tend to characterise these conditions are of key concern to teachers of children with SpLD.

Palincsar and Klenk, (1992) posit that students with Specific Learning Difficulties experience "difficulty with intentional learning" (p. 254). Although Vygotskian beliefs, which will be described in the next section, have not flourished in the realms of special education (Gindis, 1999; Yaroshevsky, 1993), he obtained most of his data from this domain. For Vygotsky, it was a vast natural experimental area where psychological laws were founded out of anomalies and atypicality in learning (Yaroshevsky, 1993). These views are supported by Gindis, (1999) :

“Vygotsky’s theoretical and methodological finding is the most powerful single source of professional inspiration for current and coming generations of special education”(p.3).

The key to Vygotsky's approach lay in knowing the nature of the disability and striving to discover the means of remediation (Gindis, 1999). Although specific learning difficulties constitute only a small part of Vygotsky's notion of atypicality, he argued that disability was only apparent when seen in a social context, when it interferes with communicational processes between significant others. So, for example the child who is a 'concrete' thinker would have problems understanding the abstract language contained in mathematical problems such as: "On a hundred square card, is 50 higher (more than) 44?" This typifies the problem because on a number card, 50 appears below 40 in ascending order. This problem is heightened for children with language deficits because it also involves decentering away from everyday meanings. However, Mercer and Edwards, (1987) suggest that shared activity and shared conceptions carried out by language are the pivotal constituents of successful scaffolding. This is of interest because subject areas such as Creative Writing encourage children to utilize personal experiences, and everyday language is used to describe these. Thus, Creative Writing is more readily cast as a genuinely shared activity. Consequently, one might expect teachers to scaffold children with SpLD in different ways within different curricular areas. Vygotsky, (1978) stressed the importance of qualitative characteristics and positive approaches in the development of children with learning difficulties. He believed that the 'disability' should be a point of strength and as such a positive differentiation, and that it was important to view SpLD as being associated with different modes of teaching and learning.

The metaphor of "scaffolding" is described by Stone, (1998) as provision of:

"..temporary assistance to children as they strive to accomplish a task just out of their competency, adults are said to be providing a scaffold, much like that used by builders in erecting a building....It connotes a custom-made support for the "construction" of new skills, a support that can be easily disassembled when no longer needed" (p.344).

However others such as Biemiller and Meichenbaun, (1998), Donahue and Lopez-Reyna, (1998) and Scruggs and Mastropiere, (1998) have questioned the relevance of the scaffolding metaphor in the field of learning difficulties because of the changing dynamics occurring between teacher and pupil. Donahue and Lopez - Reyna, (1998) for example, argue that a support mechanism for children with Specific Learning Difficulties (SpLD) should not be a "flimsy structure" rather, it should be akin to a "flying buttress" which remains as a support and "..then itself becomes an integral and evolving part of the new structure." (p.399). The metaphor is discussed in detail in Section 1.3.

Thomson and Gilchrist, (1997) argue that children with SpLD:

"have discrepant difficulties, strengths and often pronounced weaknesses. Most of all they are confused themselves, receiving constant mixed messages"(p. 2).

One could conclude therefore that the learning of children in these instances requires unambiguous support. Of course there is also an observable variation in ability in typically developing children, but this is especially true of children with SpLD, who are, by definition, high ability in some areas, but

seriously low ability in others. So the extremes of ability within any given child with SpLD are more pronounced, and therefore more problematic.

Of course children initially need to attend to teachers' instructions and explanations. However, many children with Specific Learning Difficulties have poor attention skills, are easily distracted and even if they can abstract meanings, successful task completion is often hampered because they cannot maintain concentration. Teachers need to find strategies to 'hold' important information for such children. He or she must then proceed to 'scaffold' the child's learning by whatever means so that the child understands the aims of the task and is encouraged to complete this task. It can therefore be argued that scaffolding is unlikely to be effective unless the child's interest and attention are elicited in the first instance and that this is maintained. Effective scaffolding is therefore related to its social context and is dependent, to some extent, on what is being taught.

Although the application of the ZPD to special education remains a 'terra incognita' (Gindis, 1999 p.79), Vygotsky believed that it was still applicable depending on the nature of the disability, the child's cognitive learning potential and the expertise of the SpLD teacher. The child should therefore be led by educators who can provide him or her with the tools for learning within the child's ZPD. Borkowski and Muthukrishna, (1992) suggest that if teachers are to address the needs of children with Specific Learning Difficulties efficiently, they need to understand the processes involved in specialist teaching approaches, i.e.



“...his or her implicit working model of children’s learning and problem solving is essential for sustained, innovative, strategy orientated instruction.” (p.253).

However, the writers do not elaborate on what they mean by ‘innovative, strategy- orientated instruction’. This thesis therefore seeks to explore the nature of the strategies used by specialist teachers in order to make explicit the processes by which they support the learning of children with SpLD.

To summarise, the nature of specific learning difficulties suggests that children who experience SpLD need to have their learning supported in very specific ways. However, others such as Donahue and Lopez-Reyna, (1998) have questioned the relevance of the scaffolding metaphor in the field of learning difficulties because of the changing dynamics occurring between teacher and pupil. Furthermore, Borkowski and Muthukrishna, (1992) argue that teachers need to understand the processes that are implicit in supporting the learning of children with SpLD. The following section considers the differing perspectives of researchers on scaffolding and its links with Vygotskian approaches to teaching and learning.

### **Vygotskian Approaches to Teaching and Learning and the 'Scaffolding' Metaphor**

This thesis, in focusing on concepts such as 'scaffolding' and 'the zone of proximal development' is underpinned by the theoretical stance of Vygotsky, (e.g. 1962, 1978). It is therefore necessary to begin by evaluating the ideas

implicit in this approach, before proceeding to a critical review of the literature, scaffolding and the ZPD.

Gindis, (1999) suggests that:

"The timeliness of Vygotsky's works is borne out by the fact that he discovered links between sociocultural processes taking place in society and mental processes taking place in the individual" (p.2).

In this way, Vygotsky's approach created links between mental and social processes and as such has influenced pedagogic approaches in schools today (Vygotsky, 1978). For Vygotsky, learning was a shared experience, and Vygotskian ideas have underpinned recent attempts in the UK to move towards models of 'inclusive' education (Thomas and Glenny, 2004).

Vygotsky believed that a learning difficulty should be a point of strength and as such, positive differentiation, and that it was important to view SpLD as being associated with different modes of teaching and learning (Gindis, 1999). Vygotsky, (1978) believed that if teachers were sensitive to the cause of a child's learning difficulty they could bring to the fore potentials in children which were previously marred by their difficulties. Vygotsky's theoretical translation of this process was the ZPD (Zone of Proximal Development). The ZPD is defined as:

"the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers." (Vygotsky, 1978, p.86).

Vygotsky, (1978) suggests that the ZPD:

"..permits us to delineate the child's immediate future and his dynamic developmental state, allowing not only for what already has been achieved developmentally but also for what is in the course of maturing." (p.26).

Furthermore,

"If we want to know what a child is ready to learn, Vygotsky said, we cannot look at what the child can do when working alone; 'we must see how far ahead he can go when offered some assistance'." (Crain, 2000 p. 237).

These notions highlight the important link between the social and cognitive aspects of learning.

These ideas have influenced the thinking of subsequent researchers such as Wood, Bruner and Ross, (1976) and Edwards and Mercer, (1987) whose research is concerned with how dialogic interchanges between tutor and tutee influence children's intellectual development. Wood et al found that teaching is not so much about directing children, rather, teachers' actions are contingent upon children's current needs. Edwards and Mercer isolated different forms of scaffolding such as types of questioning, special enunciation and paraphrasing. These notions are discussed in detail in a later section.

Karpov and Bransford, (1995) argue that

"one can assume that whether instruction facilitates cognitive development depends on what type of learning is

being used rather than on what subject is being learned".

(p.65).

One could suggest that this notion supports Vygotsky's theory that intellectual development is dependent on the nature of the learning processes as opposed to what is being taught. However there are dissenting voices. Research by Bliss and Askew, (1996), (discussed in a later section), suggests that the curricular area being taught affects the learning process by influencing the strategies for teaching employed by the adult. This is because some topics e.g. Creative Writing, afford greater opportunities for drawing on children's idiosyncratic understanding and knowledge of the topic. Vygotsky's emphasis on the 'more able other' in promoting children's development both inside and outside the classroom contrasts sharply with the views of others such as Piaget, (1970) and Gesell, (1928), both of whom argued that cognitive development came solely from children from their ".. inner maturational promptings or spontaneous discoveries" (Crain, 2000, p.219).

Piaget, whose ideas were influential in the 1960s, believed that the development of social understanding ran parallel to cognitive development. He believed that children learned through individual discovery and not through social interchanges with adults, and that learning 'follows' maturation. Piaget, however, did not imply that children's development occurred in social isolation, rather, peers could impact on learning through stimulating and challenging children's thought processes (Crain, 2000). Piaget's views are antithetic to Vygotsky's because he believed that adult

tuition was potentially detrimental to children's cognitive development. Piaget believed that children learned through 'discovery' but that teachers needed to provide a rich learning environment as opposed to offering direct tuition. The Piagetian child did not imitate adults whom children might view as authoritative, rather, he or she interacted with peers (resulting in socio-cognitive conflict) in a way that was not possible with adults. In this way children were more likely to assimilate the perspectives of others and more likely to construct their own understanding of the world.

Vygotsky also believed that development was constructed, however, he believed that construction involved the use of cultural or inventive tools such as language. He believed that learning was more likely to occur when children of differing abilities worked together, and that a less able child would succeed if supported by a more able peer. In this way a ZPD would be created. So, whereas Piaget believed that cognitive development was constructed by children largely on their own, Vygotsky argued that ways of thinking necessarily developed through social interaction with others.

Vygotsky believed that the ZPD was applicable to special education depending on how a child's special educational need was manifested in the classroom, the social implications of this, the child's cognitive learning potential and the expertise of the SpLD teacher. Children should therefore be led by educators who can provide them with the tools for learning within their ZPD. In this way Vygotsky's, (1962) developmental theory and his

notion of the 'Zone of Proximal Development' (ZPD) has become linked to the term 'scaffolding'.

The term 'scaffolding' was a metaphor used by Wood, Bruner and Ross, (1976) to describe the way teachers and parents assist children's performance. Bruner, (1975) also applied the metaphor to parent –baby interactions at pre- verbal stages. As noted earlier, Wood et al., (1976) defined scaffolding as adult or peer assistance which:

“enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts.” (p. 90).

Furthermore, the 'tutor' would control

“those elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence.”(p. 90).

From such definitions it is clear that 'scaffolding' was an attempt to capture the ways in which adults go about supporting children's progress through the ZPD.

The authors stressed that the result of successful scaffolding was that the child did not simply complete the task, rather that he/she also understood what the task involved. 'Scaffolding' therefore did not simplify the task, rather, the difficulty involved remained but the assistance of the tutor was graduated according to the tutee's needs. Bruner, (1986) argued that for Vygotsky, 'scaffolding' enabled the child to:

“... internalise knowledge and convert it (the scaffold) into a tool for conscious control...the adult serving as a vicarious form of consciousness until such a time as the learner is able to master his own action through his own consciousness and control”(p. 123).

The child would thus, with help, accomplish tasks normally beyond his or her ability.

For Vygotsky, (1978) learning was seen as a social process and that any aspect of child development was apparent in two distinctive planes of acquisition: the social ( interpsychological) plane and then the internal (intrapsychological) plane i.e. when the knowledge has been internalised. In line with Vygotsky's notions, Wood and Wood, (1996) proposed that this internalisation of knowledge is brought about by sensitive and contingent teaching. The authors' notion of contingency referred to when an adult offered more or less assistance depending on a child's needs during problem solving. Arguing from the same premise, Rogoff and Gardner, (1984) suggested that social interaction is an important 'cultural amplifier', extending and enhancing the child's cognitive processes, with the teacher as expert and the pupil as novice. Rogoff and Gardner, like Vygotsky, believed that one should not separate a child from its day- to- day environment but view cognitive development as arising from socially constructed situations. Cognitive function was thus seen as emerging from social interaction within the ZPD.

These views were endorsed by Cazden, (1979) who argued that Vygotsky's notion of ZPD gave researchers a useful 'territory' during which teacher/child interactive scaffolding could be analysed. Cazden, (1998) emphasised that classroom participation structures should be seen as scaffolds. Arguing from the same premise Palincsar, (1998) suggests that:

"We need to understand both how effective teachers engage in scaffolded instruction.....[and] how learners learn" (p.372).

Stone, (1998) suggests that the essence of the scaffolding metaphor lies in perceiving it as a process as opposed to the previous narrow notion of scaffolding such as titrated or graduated adult assistance (e.g. Wood et al, 1976).

As mooted earlier, this notion contrasts sharply with Piagetian views that marginalise the role of the teacher because the child was viewed as a 'lone' scientist learning through discovery. Piaget and Vygotsky agreed that cognitive ability developed independently of language, each having separate origins. However unlike Piaget, Vygotsky believed that from an early age language played an important role in a child's cognitive development and that the latter was inextricably linked to a child's social development. And so, for Vygotsky the teacher was a key player in the child's learning. For Piaget, however, although teachers could be accommodated within the Piagetian paradigm, they would only serve as providers of suitable learning environments, assessing pupils' progress (Edwards and Mercer, 1987). The Piagetian child would not reach new levels of understanding as a



consequence of interacting with teachers. Although influential, the empirical basis to Piaget's theory of learning has been subject to serious criticism on methodological grounds (Donaldson 1978, Edwards and Mercer, 1987). These authors concluded that the 'experimental' focus of Piaget's research lacked the ecological validity of the neo-Vygotskian studies that have served to support the notions proposed by Vygotsky (e.g. Edwards and Mercer, 1987, and Rogoff, 1993) which have been more observational in nature. Research by Edwards and Mercer, (1987) included observations of classroom talk across a varied range of curricular areas such as computer programming, mathematics, clay modelling and science. The researchers found that pupil-teacher talk was influenced by the pupils' environment e.g. subject linked physical props and apparatus. The authors concluded that:

"The dependence of school language on context is therefore an inherent feature... We suggest that education is best understood as a communicative process". (p. 63)

Although much research on scaffolding is limited, it is redeemable. This issue is discussed in the following section.

### **'Scaffolding' Research**

Bliss and Askew, (1996) suggested that the notion of scaffolding and the ZPD became influential in education because "...within them are embedded a psycho-social model of teaching and learning"(p.37). The authors suggest that the model which was previously linked to constructivism was changing as a consequence of Vygotskian influence. Constructivists such as Piaget, whilst focusing attention on the active role of the child had ignored the

supporting role of significant others. Bliss and Askew (ibid) suggest that the term 'scaffolding' acknowledges a teacher's role in children's learning. This is an appealing notion because to date research into the nature and function of scaffolding in the context of SpLD is limited. One way in which research into scaffolding has been limited is because most research to date has tended to focus on intervention, as exemplified by the study of Wood, Bruner and Ross, (1976) who observed mothers who had been instructed in how to assist children to complete block puzzles. The researchers were therefore seeking evidence through the use of metascripts in order to support hypotheses, as opposed to observing teachers in naturalistic situations in classrooms and developing data-driven hypotheses. For example Edwards and Mercer's, (1987) naturalistic classrooms observations suggest that successful scaffolding is the consequence of linguistic interaction between a child and parent, teacher or more able peers. The researchers suggest that:

"it is a process of guided discovery in which an individual's competence begins as his or her part in a social interaction" (p.86).

This conclusion contrasts with the emphasis on contingency and control by the adult tutor that emerged from the experimental work of Wood et al, (1976) and others.

Stone and Reid, (1994) advocate the need for a greater understanding of the elements of successful scaffolding instruction. Stone, (1998) defines the core meaning of scaffolding as the 'transfer of responsibility' (p.352) to the child but concedes that views vary on how this is executed. Stone argues that a

greater understanding of the mechanism could result in more successful scaffolding. He suggests that during scaffolding, although children believe that they will understand the task, they are initially enticed into unknown territory. However, a child "...must develop an understanding from the action in which he or she is led to engage..."(p. 353). The anticipated development of full understanding is illustrated by the notion of 'prolepsis' (Stone, 1993). Stone defines prolepsis as:

"...a term for the mention of a referent in a conversation prior to its actual introduction into the conversation...providing a strong challenge to the listener to infer the referent for themselves from the present or ensuing comments"(p353).

Stone, (1998) suggests that this motivates children to listen carefully for ensuing information and to impose meaning on the teacher's utterance. If the child fails to infer, 'cognitive tension' arises. In this situation the teacher might explicate in novel ways and this in turn could lead to a greater understanding as a consequence of the preceding verbal tension. However children with SpLD frequently have poor inferential and attentional skills. This notion is supported by Simmons and Singleton, (2000) who found that although dyslexic children gave accurate literal responses to comprehension questions, responses involving inference from texts was poor. Children's ability to stay on task in these situations is likely to be impaired. This suggests that children with SpLD would need considerable support.

The presence or absence of scaffolding strategies that require inference or sustained attention would be interesting to observe in SpLD classrooms,

particularly in Mathematics where children frequently misunderstand instructions, are confused by the meaning of the question and therefore fail to solve the problem. Furthermore one could argue that Mathematics is concerned with inferring knowledge: it is not about simply learning facts, rather, about understanding rules that need to be generalized in order to generate new facts (Nunes and Bryant, 2004).

Nunes and Bryant, (2004) concluded that in Mathematics, children's 'everyday knowledge' often conflicts with the way these subjects are taught and how the children think about them. They distinguish between 'generative' and 'reproductive' learning. A child is engaged in 'generative learning' if he/she understands a system sufficiently to generate new untaught Mathematical concepts such as, if a child understands that  $6 - 3 = 3$ , then he/she could deduce that  $3 + 3 = 6$  without assistance. However the authors concluded that if children just reproduce Mathematical concepts (i.e. what the teacher has said), then this was 'reproductive' learning. One could suggest therefore that in Mathematics everyday references could be a barrier to children's understanding. This also implies that scaffolding might be 'subject specific' in some way i.e. that it will be very different depending on the subject being taught.

Bliss and Askew's, (1996) research into scaffolding in school contexts highlighted the difficulty of scaffolding the specialist knowledge contained in Mathematics and Science as opposed to the more 'everyday' knowledge in CDT (Craft, Design and Technology). The researchers observed selected

teaching sessions in all three lesson types with a view to note the progress of groups of children with an adult in these lessons. They made field notes and audiotapes of all sessions and video recordings of some. Teachers were interviewed before lessons and both teachers and pupils were questioned after the lessons. In Mathematics, concepts such as fractions and decimals involve the understanding of abstract concepts. Bliss and Askew found that teachers were struggling to teach these concepts because many were themselves unsure. The researchers conclude that knowledge which is originally the teachers' knowledge, for example 'negative numbers', and not pupils', is difficult to communicate because communication involves the use of language. But because initially there is no 'shared knowledge' facts need to be explicated. Furthermore, the children's understanding would depend on how this was explained to them which would in turn be dependent on the teacher's expertise and confidence in that particular area. The authors suggest that scaffolding in areas such as CDT should be easier because children frequently have previous knowledge of the task to be completed. Of course this is also true of Mathematics to a degree but as Nunes and Bryant, (2004) caution, mathematical knowledge is defined by 'ways of thinking' not just by learning facts.

The Bliss and Askew research is an informative study because the authors highlight the presence or absence of scaffolding in different curricular areas and suggest reasons for these differences. However, they did not characterise the different aspects of the scaffolding that occurred across the two areas studied. It could be argued that the demands imposed on children in CDT are

similar to those in other topic areas such as Creative Writing. That is, the children are more able to interpret the tasks according to previous experience or knowledge gained by parents making objects at home. In Mathematics however, children need to understand rules and there is usually one correct solution. This suggests that Mathematics is more prescriptive than CDT and Creative Writing. The research findings also imply that scaffolding might be subject specific in some way i.e. that it will vary depending on the subject being taught. This is valuable information because it indicates to teachers that different strategies may be required in different curricular areas. However, the research, although descriptive did not note the nature of scaffolding in classrooms. Indeed the researchers state that these issues need further investigation.

An earlier study of scaffolding in Mathematics was carried out by Pratt, Green, MacVicar and Bountrogianni, (1992). The study focused on the differences in parental styles of scaffolding and learning outcomes in long division Mathematics homework. Parents were asked to intervene using metascripts such as 'try this' and 'let's try it'. Results revealed that successful learning outcomes were associated with the use of appropriate contingent support (Wood, 1980). That is, Pratt et al found that parents offered more support when children were observed to be failing and less support when succeeding. Similarly, the contingent parent was more likely to be working within the child's 'Region of Sensitivity to Instruction' (RSI) (Pratt et al., 1992). In this paper the authors describe the more successful mothers as those providing the kind of assistance to children which lay just one level

above their current level of success- this was the success / failure boundary or the child's 'region of sensitivity to instruction' (p.19). The concept of RSI is closely linked to Vygotsky's notion of ZPD, in as much as children's learning is being supported in a contingent manner, at points when the child is most receptive and whilst the teacher, 'the more knowledgeable other' is assisting the child to complete tasks which would not be possible alone.

However the authors suggest that the tutoring styles of authoritative parents could be equated with those of good teachers. The researchers' data did imply correlations between Mathematical achievements and authoritative parenting but the parents were told what to say. One could argue that it is questionable whether these conclusions can be equated with classroom situations. Furthermore, mothers tend to know their charges intimately and may be able to anticipate their children's actions. Mercer, (1995) cautions that teaching and learning processes in classrooms are subject to constraints and ground rules. However Wood and Wood, (1996) argue that studies of mothers and children are relevant to one to one teaching in schools because teachers in these situations are more likely to become aware of the individual needs of children. Arguably, this could also apply to specially qualified teachers in special schools who teach children in one-to-one or small group situations.

Arguing from the same premise, Clay, (1993) and Hobshaum, Peters and Sylva, (1996) claim that the concepts of 'contingency and 'distancing' are relevant to one-to- one teaching situations in classrooms. However, unlike

contrived, experimental situations, the classroom teacher is scaffolding a task in a specific context where the activity itself might become more difficult. For example, children having grasped the concept of 'perimeter' in Mathematics, may need help to understand how they would calculate 'areas'. Teachers are also striving to meet the demands of prescribed curricula. Hobsbaum et al, (1996) assert therefore that Wood et al's, (1976) study of problem solving involving mothers and children in a single short task in experimental situations, contrasts sharply with the scaffolded instruction of classroom teachers who strive to meet curricular targets. The authors conclude that the fading of parental control is the norm because Wood et al's mothers were focusing on one child whom they knew intimately and would encourage their offspring to work independently. This contrasts with the position of teachers with groups of children with varying needs. Hobsbaum et al, (1996) also suggest that written tasks in classroom situations are changeable and unpredictable and could involve unforeseen material. This contrasts sharply with tasks set in experimental situations where researchers are observing how children react in given situations. Furthermore, one could argue that in a creative writing activity outcomes are more likely to be unpredictable and more dynamic in nature. This is important to note because it illustrates that subject contingency for tasks is very complex and so the nature of scaffolding is variable and may be unpredictable.

Although the Pratt, Green and MacVicar, (1992) research did not focus on children with learning difficulties, it is an interesting study because the researchers highlighted the importance of working within the child's RSI. It



is relevant because one would expect to find differences in the nature of scaffolding strategies when teaching children with language and attentional problems. Arguably, in these instances, RSIs might be more difficult to access and one could find individual differences depending on a child's deficit and also in the different curricular areas because the nature and demands of the subject are different such as in Creative Writing and Mathematics. Consequently, the nature of 'appropriate' or 'contingent' support in SpLD contexts may have different characteristics from that observed previously in studies of scaffolding with 'typical' children.

Classroom based research into scaffolding was carried out by Newman, Griffin and Cole, (1989). They tried to establish whether scaffolding could be observed in whole class contexts. The researchers observed teachers and pupils working at tasks together through mutual negotiation but with teachers initially doing most of the work. Gradually the children became more confident until they could work alone. In this sense "scaffolding" was viewed as a temporary support. The tasks did not become easier rather, the children became more competent. These researchers, supporting Vygotsky's concept of the ZPD, argued that cognitive development occurs within the 'Construction Zone' through social interaction with the tutor. Tutor / tutee knowledge of a task is therefore asymmetrical because a subject teacher is likely to know more than the pupils. These authors conclude that learning in the ZPD consists of teachers trying to teach and tutees endeavouring to make sense of what the tutor says depending on their level of understanding at that time. However, in subjects such as Creative Writing children are likely to

know things that teachers do not know and this is what teachers usually target. However Bliss and Askew, (1996) argue that these conclusions are rather ambiguous because they do not examine the difficulty or ease of the knowledge to be understood. This suggests that there is a need to think of scaffolding as 'subject specific' and that it will necessarily vary across contexts and areas of the curriculum, and across children who may have different abilities and needs.

Some authors, notably Butler, (1998 ) criticise the 'scaffolding' metaphor as evoking an image of the child (the edifice) as passively allowing improvement to be carried out as opposed to actively contributing to its own learning by interacting with a tutor. Stone, (1998) argues that unlike a fixed scaffolding supporting a building, a tutor's assistance changes according to the child's competence. One could therefore suggest that 'competence' is an artefact of tuition and as such, consistent with Vygotsky's notion of learning as a social process with respect to individual differences in children's attainment. This would be reflected in the scaffolding strategies used by tutors. This also signifies the bond between the social and cognitive aspects of learning.

Wood and Wood, (1996) set out to investigate why some infants learnt to master complex tasks when taught by their mothers whereas other children learnt very little. Observations allowed the researchers to predict the extent of a child's learning by linking this to the extent to which mothers followed two rules"... if the child succeeds, offer less help; if she or he gets into

trouble, offer more help" (p.391). They coin the term 'tutor distancing' and argue that what people would regard as a missed opportunity might, in fact, have positive outcomes. These would be instances where teachers 'distance' themselves from children if they were succeeding. In other words the teacher would be responding contingently with the child's needs. This would enhance the child's self esteem because he or she had succeeded without help. But how does the teacher establish how much the child knows at task induction ?

Leseman and Sijssling, (1996) criticize Wood et al's notion of contingency because it did not consider that the learner's personal conceptualizations of a task might differ from that of the tutor. One might also suggest that it would be unrealistic to expect a class teacher to assess each child individually. Leseman et al suggest that the teacher's views might be supplanted on the learner and as such would be a 'transmission' notion of learning as opposed to being contingent. Wood et al suggest that:

"the more the adult withdraws from concrete directives and manipulations of task materials, the more likely it is that the child will subsequently take over the task responsibility and show self-regulation" (p.393).

However, children with SpLD are less likely to do this, depending on the nature of the learning difficulty. If children with SpLD are left to cope alone and fail, then it could result in the lowering of self esteem. And so even within the mainstream literature there is debate about what effective tuition is. This suggests that there is scope for a data-driven approach to understanding the nature of contingent instruction. Furthermore, it would be

useful to establish whether some types of scaffolding strategies are subject specific or are constrained in some way by the topic being taught.

Leseman and Sijsling, (1996) conclude that distancing and contingency need to be interwoven. Again, this is an interesting theoretical perspective and Wood et al., (1996) agree that concepts such as distancing and contingency are products of dyadic interaction and as such are only relevant in individualised tutoring situations because teachers cannot be aware of individuals' knowledge and needs in the classroom. Furthermore one could argue that linking the terms could be confusing because sensitive teachers would only 'distance' themselves if, in-so-doing, they believed they were acting contingently.

To conclude this section, it would seem that insufficient research has been carried out to characterise the nature of support given to children with Specific Learning Difficulties and questions remain regarding whether the metaphor of scaffolding is really appropriate in this area of teaching and learning. Furthermore, one might argue that the nature of the support given in different areas of the curriculum, should be qualitatively different and that teachers need to 'scaffold' children's learning in different ways, according to the degree of shared understanding of the topic. This also indicates the strong link between the social and cognitive aspects of learning.

### **The Role of Language and Communication in Effective Scaffolding.**

So far, the thesis has considered scaffolding in general terms. However, central to the concept of scaffolding is the use of language to communicate task demands and guide the child through the ZPD. For this reason the review will focus here on linguistic interactions between teachers and pupils. For Vygotsky, (1978) language was a psychological tool. By this he meant that humans make sense of everyday experiences through language. Mercer, (1995) suggested that language was a "cultural tool" (p. 4) because we use language in order to share and therefore make sense of everyday experiences together. Mercer posits that "When you talk, you have to think about what you hear"(p. 4). Mercer's notion of exploring through language together resonates with Vygotskian beliefs that knowledge is constructed through joint activity.

Bruner, (1983) continued Vygotsky's work: he observed mothers and children and paid particular attention to mothers' language during interactions. Bruner coined the term 'scaffolding' to describe how adults became closely involved in children's learning through dialogue thus enabling a child to understand a task which would otherwise be out of 'reach'. Bruner believed that adults, 'through language' take a leading role in the construction of child support systems so that the responsibility for completing a task can be handed over to the child, i.e. the child becomes independent.

Taking a slightly different stance, Wood et al. (1976) suggest that what is involved in teaching is not so much a process of directing the child but one more akin to:

“leading by following... adults tend to make what they do contingent upon their interpretation of what is likely to be the current focus of interest or relevance to the child”  
(p.109).

The more knowledgeable adult, through language, assists pupils to organize their activity in such a way that the task becomes manageable thereby reducing uncertainty and stress and ultimately enabling the child to proceed. The teacher is thus ‘handing over’ to the child. Wood et al also stressed that successful scaffolding gives the child a better understanding of how problems are solved. Language is a critical aspect of this because children through communicative language with adults acquire knowledge of the ‘how and why’ i.e. the metacognitive, and should subsequently be able to tackle the task independently.

The importance of appropriate use of language in effective scaffolding is illustrated by research into scaffolding in Science lessons by Fleer, (1992) which involved observing three teachers during science lessons. Transcripts of these lessons revealed that mutual understanding between tutor and tutee led to the handover of new concepts to pupils. However she reported some negative scaffolding such as a teacher simply telling the children what to do, as opposed to giving structured explanations. In this instance, the teacher did not attempt to communicate understanding to the child. It is worth reminding ourselves here that Wood et al's, (1976) definition of successful scaffolding

was not about simplifying a task, rather, the child would understand what the task involved. However in mainstream classrooms and without assistants it could be argued that it is extremely difficult to 'get the message across' to some children, especially those with learning difficulties, and it therefore seems likely that there may be a considerable number of instances of negative scaffolding and limited understanding. It could be argued that this may not be the case in a 'special school setting' where pupils are taught in small groups and teachers and therapists are aware of individuals' learning difficulties.

Fleer stresses the undoubted importance of mutual understanding between teacher and pupil in a clear, mutual goal-seeking context, while seeking to hand over new knowledge to pupils. These elements bear similarities to the beliefs of Wood and Bruner mentioned earlier i.e. that mutual understanding must pre-empt successful 'hand over' of responsibility and ultimate completion of the task by the child. Although this study provides an interesting insight into classroom discourse during Science lessons, the acquisition of 'mutual understanding' is likely to vary in different subjects because children have more background knowledge in some areas than others e.g. children are more likely to be more familiar with cooking than with scientific experiments. This suggests that scaffolding could vary depending on what was being taught, or at the very least, would be more difficult to implement in subjects where little prior knowledge existed on the part of the child.

Such notions are echoed by Langer and Applebee, (1986) ( cited in Stone, 1998). They isolated five elements of scaffolding :

“ownership (of the activity to be learned), appropriateness (to the student’s current knowledge), structure (embodying a ‘natural’ sequence of thought and action), collaboration (between teacher and student) and internalisation (via gradual withdrawal of the scaffolding and transfer of control)” (p.438).

These authors therefore believed that teachers need to ensure that children understand the purpose of current activities. This means that tutors need to use language which their pupils will understand so that they can proceed and become independent. Although these elements support other researchers’ beliefs regarding scaffolding (e.g. Cazden, 1988 and Wood et al.,1978, these authors ignored the importance of the elicitation of learner’s interest. This is particularly important in the teaching of atypical children because ‘eliciting the child’s attention’ is arguably a fundamental prerequisite of any subsequent effective scaffolding of children with poor attentional skills.

The importance of communication and mutual understanding within scaffolding is discussed by Stone, (1998). However, he suggests that it is unwise to separate verbal and non-verbal communication because they are inextricably entwined. However the writer decided to separate these for the purposes of this discussion because teachers frequently support and assist children to give accurate responses through e.g. manual gesticulations such as indicating to pictures or information on the board when children are unsure and need to give accurate responses. Stone also asserts that the



successful completion of a task is multi-layered. In the first instance there must be verbal or non verbal communication followed by the teacher establishing whether pupils have assimilated the facts successfully. If this was so then it meant that the child would have succeeded in assuming responsibility. Stone goes on to describe scaffolding thus:

“During these cycles the child is engaged in an ongoing process of communicational inferences as a means of making sense of the adult’s actions or utterance drawing on preceding and subsequent action or utterance to clarify or reconceptualise unfamiliar action” (p354).

Communicational discourse was also the topic of research by Edwards and Mercer, (1987). The field work was carried out in three primary schools and one comprehensive school. Interviews with teachers and pupils were recorded after lessons in order to establish the degree of mutual understanding which had taken place and to identify areas of misunderstanding. Three consecutive lessons of a teacher working with a particular group of pupils on three separate days were video recorded. The pupils were observed individually, in groups or in pairs. Lesson duration ranged from 20-30 minutes and discourse was transcribed and analysed at 'micro' level. The authors illustrated the different forms of scaffolding found in mainstream classrooms:

*a) Elicitation of pupils' contributions*

Edwards and Mercer found that teachers demonstrated IRF modes of scaffolding: “Initiation by a teacher, which elicits a Response from a pupil, followed by an evaluative comment of Feedback from the teacher” (p.9).

*b) Significant markers*

e.g. special enunciation, formulaic phrases and joint knowledge markers e.g. simultaneous speech, 'royal we' and repeated discourse formats. According to Edwards and Mercer important information could be highlighted through rises in intonation whereas lowering of intonation would confirm accurate responses.

*c) Paraphrasic interpretations of pupils' contributions.*

Edwards and Mercer illustrate how these are another form of IRF at the feedback stage. They observed a teacher paraphrasing a child's verbal contribution whilst redefining this in a more concise, relevant and accurate way.

*d) Reconstructive recaps and implicit and presupposed knowledge.*

The researchers saw this as a powerful means of imposing teachers' knowledge and definition of the teachers' interpretation of the task on the child, without being explicit. Pupils were made to feel that the teacher assumed they had knowledge of a concept even if they did not. In so doing the teacher was also telling the child what he or she needed to know. One might suggest that this was an effective form of scaffolding because the

pupils' lack of knowledge was not exposed rather, they were given information by the teacher. But, as discussed earlier this action might also be construed as negative scaffolding.

This study describes how knowledge, i.e. school curricula, is received by pupils, introduced by teachers and subsequently shared by tutors and tutees. The strategies they described are evaluated in Section 1.7.

Edwards and Mercer's observations are similar to Mehan's,(1979) notion of IRE: (Teacher **Initiates** a question, the pupil **Responds** and this is **Evaluated** by the teacher). Because this involves the use of language, one could argue that some aspects of IRE may need to be modified when teaching SpLD children. A child with poor attentional skills and/or who has difficulty in understanding meanings may not easily understand the teacher's instruction. Further scaffolding may be needed to elicit a correct response from the child. It would be useful for student SpLD teachers to know how to initiate the questions that engage learners, but which also ensures that pupils' self esteem is not eroded by giving an inappropriate response. However Edwards and Mercer, (1987) suggest that questioning pupils could stifle thought processes and impede understanding if the pupils are prevented from recalling and applying relevant knowledge when questioned by teachers. The researchers also stressed the importance of practicing the use of language for explaining and reasoning. One could argue that this would be particularly important for atypical children who frequently have poor expressive language skills. Futhermore, and as suggested by Edwards and Mercer (ibid),

if questioning does stifle thought, one could argue that it is less likely to be true in instances where children are questioned about what they know or what they have experienced. In these instances teachers are more likely to be extending children's responses as opposed to evaluating them. However, Reid, (1998) criticizes the IRE model because:

" a) there is typically only one correct answer to a known-information question and b) the response is expected to be both brief and precise" ( p.9).

Furthermore, it could be argued that it may be more facilitating for children if teachers' questioning is graduated. This would allow teachers to 'listen' to children's thinking and be in a better position to ask further questions as opposed to evaluating the pupil's response after the initial question. In this way they may be more likely to extend learners' thinking.

Research by Pelligrini, McGillicuddy-DeLisi, Sigel and Broady, (1986) highlighted the differences in interactive styles (verbal and non-verbal) between the parents of typically developing children and parents of children with communicational handicaps whilst engaged in problem solving tasks. These researchers, whilst focusing on the children's level of engagement in activities found that, although both groups were fully engaged in the tasks, the assistance given by parents of typical children was more cognitively demanding but less supportive: the parents offered less assistance during reading tasks because they expected their children to do well. The findings indicated that in general the parents of atypical children were more sensitive to their children's needs, for example they adjusted their support as tasks

became more difficult. They were aware of communication difficulties experienced by their children and consequently gave a greater number of verbal explanations. They also used different scaffolding techniques, for example in an Origami task they offered verbal instructions of how to fold paper in order to produce different shapes. However, the researchers do not clearly define their samples. They described one sample as 'typically developing' children and the others as children with 'communicational handicaps'. The latter may be children with ADHD who may not be communicating because they are inattentive or they may have speech deficits. One assumes that they were the latter because the researchers found both groups fully engaged. However, the researchers did not analyze the contingent relationship between child behaviour and adult assistance and did not establish what the children had actually learnt. Had they done this, they may have gained a better evaluation of parental scaffolding. Furthermore in SpLD contexts in schools, teachers are unlikely to be as intimately aware of children's communicational problems as parents. However, Peligrini et al's observations might suggest how specially qualified teachers could work sensitively with their pupils in a one-to-one situation.

The present review of the literature on scaffolding suggests that, to date, there are no data regarding the differences in the modes of scaffolding which might exist in different curricular areas in schools for children with SpLD. This thesis argues that differences may exist because of the very nature of the communicational learning difficulties experienced by such children and so further research is needed in this area.

On reviewing the literature on 'scaffolding', three key themes emerge as critical aspects of successful scaffolding: a) Elicitation of learner's interest / task induction (Wood et al, (1996), b) assisted performance (leading to shared understanding (Tharpe and Gallimore, 1990) and c) handover of responsibility for learning from teacher to child and self regulation/ ownership of the task to be learned (Bruner 1983). It would seem that successful learning depends on the co-existence of these i.e. unless the child's interest and attention are captured, or the task is made sufficiently inviting, he or she is not likely to be in learning mode and cannot share the knowledge which the teacher is eager to impart. If the tutor is to handover responsibility for learning to the tutee, then there must be shared understanding between participants. Lastly, if the last stage i.e. self regulation is to be reached, responsibility for the task must be handed to the child. The thesis will focus on the first two themes. This is because children with language and attentional problems are likely to need sensitive forms of scaffolding when new tasks are being introduced. The present study will focus on these areas because they were identified by preceding review as potentially problematic for children with SpLD, given the nature of their cognitive difficulties.

#### a) Elicitation of Interest

Wood and Wood, (1996) stressed that :

“..task induction becomes a primary scaffolding function and a ‘sine non qua’ for effective learning” (p 106).

Wood and Wood questioned how adults effectively do this and noted that merely instructing children on how to do things is only effective if the children understand what is being said. The authors argued that verbal instruction must be within the child's ZPD i.e. when a child will understand what the task involves with the help of knowledgeable others. However, the authors suggested that words with demonstration would be a more efficient means of task induction.

This point is illustrated by Wood, Bruner and Ross, (1976) research with mothers and very young children. This illustrated how mothers initially showed the infants the finished puzzle in order to engage the child's interest. Bruner, (1985) asserted that modeling or demonstrating a task is an inevitable procedure, in other words it is what teachers do instinctively. It lures the child towards 'learning' because it tells the child not only that the task is interesting, but possible to attain. In a singing lesson for example, children might first listen to a song on a tape before learning the different parts with the teacher's assistance. One could argue that because the conceptual demands of different subjects are often very disparate, then the teacher's ways of eliciting children's interest may also differ accordingly. In order to categorize the differences one needs to scrutinize what goes on in the lessons. Of course children do vary in terms of ability, so scaffolding will be different because one child will require more or less assistance in order to meet the goals of a given task than another. This suggests that teachers need to be aware of what children already know when introducing a new topic. It would be interesting to discover how teachers do this and whether there are

differences in teachers' approaches in different curricular areas. For example, how an English teacher initiates children into poetry writing and how Mathematics' teachers introduce the concept of long division. However, showing a complicated sum on the board could be viewed as inhibiting, rather than soliciting the child's interest in the task. One might also suggest that if the approach was inhibiting, a child's self esteem could be lowered. This might affect a child's willingness to participate subsequently. Furthermore, it could be argued that modeling the outcome is less appropriate in Art or story writing where each child would be expected to produce different outcomes. In these instances, modeling the process is more important than modeling the outcome of the child's activity. However one could suggest that before this takes place there must mutual understanding between participants. This notion is discussed in the following section.

#### b) Assisted Performance Leading to Shared Understanding.

When the adult has successfully engaged the child, the learner is potentially advancing within the ZPD. Tharpe and Gallimore, (1990) defined assisted performance as:

“what a child can do with help and with the support of the environment, of others, and of the self”. (p. 45).

This usefully links with Vygotsky's, (1978) notion of interpsychological and intrapsychological development. Rogoff's (1993) research related to scaffolding during adult and pupil tutoring. She observed children and teachers in classrooms and tried to establish whether adults and pupils participated jointly in the tasks. She identified several elements of



'successful collaboration'. These included: linking pupils' existing knowledge to the demands of a new task, supporting the learners so that they remained aware of the task goals, guidance which ensured that the pupils were actively involved in the task which was hitherto too demanding and transferring responsibility from teacher to pupil. However the author does not describe precisely the scaffolding strategies which could be characterised as being operational at different stages of learning. For example, when teachers introduce new topics it may be necessary to link new information to previous areas of study or tutors may try to establish what the children know through questioning. One could also argue that because the study (as with most studies relating to scaffolding) has focused on teacher behaviour, because teachers are viewed as the more knowledgeable participants, it has ignored the effects of teacher talk on pupils and neglected the notion of teaching and learning as a jointly constructed activity (Edwards and Mercer, 1987).

Following the theme of assisted performance, Rogoff and Gardner, (1984) observed that as children become more confident, assistance is frequently truncated as adult assistance becomes contingent upon the child's performance. Rogoff and Gardner (1984) observed that teachers abbreviated /truncated their help such as in the initial stages of a task when an adult's assistance tended to be narrowly focused when a child was unsure. For example, in a block assembly task an adult might tell a child to put a green block in front of a blue one. As the child became more confident, the adult would just prompt and ask the child what he/she would do next. Rogoff et al,

(1988) suggested that by adjusting the levels of verbal assistance in this way, adults were sensitive and responsive to children's needs.

Linked to the notion of assisted performance and truncating is Stone's, (1998) notion of titration of assistance in allowing enough redundancy in instruction. An adult would give sufficient detail in a message so that if the learner failed to understand one aspect of the message, he or she could make use of other information in order to make sense of the adult instruction. However, there is little empirical literature on redundancy in classroom based scaffolding. The notion of redundancy reduction may not apply in the context of SpLD because of the language difficulties inherent in atypical children, but it would be interesting to establish whether SpLD teachers use this strategy. On the other hand too much information might confuse children with SpLD particularly in the case of children with poor attention skills and /or with poor memory. Allowing enough redundancy may therefore be deemed ineffective in this field. The notion of 'truncating' is further evaluated in a later section.

Linguistic forms of assisted performance were the focus of research by Wood and Wood,(1996). They suggested that in the process of teaching:

“we are studying two complex systems that know things: teacher and child. We believe that these two systems are in asymmetrical states in that the teacher knows more than the child and has responsibility for transferring that knowledge. But the asymmetry is not entirely one-sided.

The child also knows things about the world and himself that the teacher does not know” (p.111).

In a multicultural environment, for example, a teacher might be discussing cultural issues with children who, because of their origin, are more knowledgeable than the teacher about the topic under discussion. Ideally, if a child has previous knowledge of a topic then less support is needed from the teacher but in reality a teacher cannot know exactly what individual children know.

A key element of assisted performance identified by the work of David Wood in particular is that of contingency. For example, Wood, Bruner and Ross (1976) established that children were more likely to succeed if mothers followed the two rules: 1) if a child succeeds she offers less help but 2) offers more help if a child experiences problems. Mothers were in this way contingent upon their children’s action. However if a teacher’s instruction is ignored Wood et al suggested that a contingent teacher would stop what he or she had planned to teach and “offer any subsequent help in relation to what the learner is inferred to be trying to do” (p.7). This was defined as ‘domain contingency.’ They found in some instances that children had solved problems not modelled by adults. But, is it realistic to suggest that teachers can attend to individual’s needs in the same manner? Of course, teachers try to scaffold children to solve their own problems but individuals have different needs and it may be unrealistic to suppose that they can fulfil the needs of each child in a classroom.

Wood et al, (ibid) also refer to 'temporal contingency' i.e. accurately timing instructions to suit the flow of the learner's thinking. For example, seeing that a child is confused, a teacher would not offer help initially but after some time he or she would assist. Again, this could be difficult to implement even in small SpLD classrooms because of the differences in nature of the children's learning difficulties. It might be construed as negative scaffolding i.e. if the child were ignored for too long. This would be particularly disastrous if the child had low self- esteem. Wood, Wood, Griffiths and Howarth, (1986) stress that the correct timing of instructions is imperative if sustained mutual understanding is to be achieved. But if a teacher gives a new instruction before the current activity had been completed, the researchers suggest that this might result in confusion and as such would not assist the performance of the child. These conclusions were however drawn from studies of mothers with deaf children and deaf children's thinking skills are very different from those of hearing children. These notions might not apply to interactions between teachers and hearing children because what is contingent in one context may not be contingent in another and 'contingency' by definition implies sensitivity to the child's current state. And so, a teacher might be 'contingent' when a more able child is left to develop his or her thinking, but a teacher would not be behaving contingently if ignoring a less able child.

'Assisted performance' is also linked to Edwards and Mercer's, (1987) focus on 'shared understanding' during interactions, in classrooms. They argue that: " the only knowledge that counts is that which is, or can be,

communicated” (p.123). Edwards and Mercer looked at the ways in which teachers and pupils established ‘common knowledge’. They were particularly interested in how both parties made sense of what they said and did in an ‘intermental’ context. They focused on knowledge which was “socially constructed”(p.123). This was against a background of a pre-existing curriculum, the teacher guiding but controlling the pupil.

In one instance when the researchers introduced learners to a new computer program, they initially established links with a previous encounter with computers. When pupils experienced difficulty, the tutor would promote shared understanding by asking, “What have you been doing all along?” (p. 226). In this way the teacher was helping the child to focus on what the teacher perceived as important information through discourse. The adult was thus assisting the performance of the pupil. The teacher was also establishing and developing joint understanding of the task in hand. They discussed impending work and linked this to previous work. During the following weeks reference was made to this work; the teacher was observed pointing out the facts to date and continually questioning and recapping by saying that they had covered the facts previously. Edwards and Mercer argue that it is the teacher’s role to do just this. In a further instance the teacher intervened to help a child in trouble with a reminder of what they had been doing. In this way the child was encouraged to focus on the relevant issues and tutor and tutee were sharing knowledge i.e. knowledge had become intermental. The authors saw this as an essential feature of good instruction through verbal scaffolding.

And so, joint understanding or intersubjectivity was established through 'recapping' and through updating the child's information whilst assisting the performance of the child. The teacher was observed to use these strategies to establish a context for future work. The authors referred to this as 'reconstructing' a collective memory. Reconstructive paraphrasing was seen as a useful strategy because the teacher imposed appropriate terminology when paraphrasing the child's contribution. In the same observed lessons the teacher, through reminders and re inventing pupils explanations, managed to move the pupils thinking on in such a way that the pupils felt that they had been in control.

Edwards and Mercer concluded that although teachers and pupils are active participants in the process of reconstructing knowledge and experience, their roles are different. When the teacher recaps he/she knows in advance that the information is accurate. In this way a teacher is making positive steps in assisting the performance of a pupil. However, questioning as opposed to reminding children with SpLD about what they had in previous lessons may not be effective because if children have poor short term memory they may not be able to respond. This may result in a lowering of self esteem.

However, one might suggest that the most obvious means of attaining intersubjectivity is by questioning. Wood and Wood, (1983) argue that if teachers ask fewer questions then children are likely to listen more to peers and make more comments about what peers say. Arguably this is valuable

because pupils talk more freely to peers and it provides the teacher with opportunities to listen to the children's thinking and assess their understanding.

One could argue that children with poor attentional skills could find it difficult to concentrate when questioned by teachers. Wood and Wood (1986) argue that generally, classroom discourse stifles children's thinking because teachers ask too many questions. They believed that teachers would be behaving more contingently if they offered a viewpoint as opposed to questioning in order to elicit the children's ideas. They argue that one needs a combination of the 'declarative and interrogative.' (p.115). The big question is, if we are to determine the child's ZPD then how do we do this effectively? How do we establish where the child is at? But more significantly and in the interest of the current research one could try to establish if teachers in SpLD classrooms use these strategies.

Swift and Gooding, (1983) observed the effects on pupils if teachers paused between questions in Science lessons. They found that when teachers extend the pauses between questions the children were more responsive during the lessons. This indicated that children may benefit from having more time to think. This notion is linked to 'distancing' discussed earlier. It is an interesting theoretical perspective but difficult to observe in action because a teacher might either pause to allow a child to think or pause because he or she is searching for an appropriate question to ask. Furthermore, children with poor attentional skills are frequently distracted unless they are kept on

task and appropriate questioning could be usefully used to maintain attention in such instances. One could however suggest that that children with poor attentional skills may not lose concentration if they are questioned about anecdotal events because they are more likely to remember which film they had seen the night before as opposed to the nature of Mathematical constructs introduced in a previous lesson. This suggests that the nature of teacher questioning could vary in different areas of the curriculum. This also raises the important motivational features of different topics.

To summarise this section, earlier research on scaffolding had focused on mothers and children. Of course it does depend on how well a teacher knows the pupils, but generally one could that argue it is unrealistic to relate these findings to teachers in classroom situations. Scaffolding is not without problems in the classroom because teachers might have different styles, interests and varying levels of competence. Furthermore, the understanding of abstract concepts could be difficult for SpLD children with language deficits. Consequently, because of the inherent nature of atypical children it was argued that their learning needs to be scaffolded in different ways, thereby indicating the strong link between social and cognitive aspects of learning.

Two key scaffolding themes emerged: 'elicitation of child's interest' and 'assisted performance leading to shared understanding'. Further scaffolding strategies were discussed: These were concepts such as recapping and paraphrasing information. It is suggested that researchers have largely



neglected to explore the presence or absence of these in SpLD contexts. Researchers have also failed to consider the possible usefulness of RSIs and IREs as possible means of scaffolding in SpLD contexts. It was also concluded that further research needs to be carried out to determine possible differences in teaching strategies in different curricular areas. However the research studies that have embraced some of these issues in the area of SpLD are discussed in the following section.

### **Scaffolding and Specific Learning Difficulties.**

The research papers referred to so far have dealt mainly with children who are typical in their cognitive abilities. I now turn to authors who have researched the nature of scaffolding in the field of learning difficulties. Palincsar and Brown, (1991) highlighted the effectiveness of 'reciprocal teaching' when teaching comprehension to children with low reading scores. In essence, pupils and teachers took turns to question, summarise, clarify and predict events in the texts by repeating sequences of events. The teacher began by modelling and giving detailed feedback. He or she then gradually hands over responsibility to the children. The children were seen to become more actively involved and tended to mimic the teacher's responses. One could argue that the children might be taking on this strategy as though it were his/her own. Of course, success is dependent on complete mutual understanding of the current topic in order to allow the teacher to monitor the child's progress. However, Palincsar et al do not suggest how the child's interest was aroused initially. The success of reciprocal teaching was believed to be due to actively involving the children, through turn taking,

and the belief that improved motivation was due to the goal-embeddedness of the task. The teacher could monitor pupil progress. However, the researchers' sample consisted of children with low reading scores. Consequently, if no reading is involved, then these children are able to perform as other children. However, researchers did focus on children's contributions which revealed how children have some control during dialogic interactions as opposed to focusing on what teachers say (Stone, 1998).

Scaffolding the understanding of children who have learning difficulties in reading comprehension has been addressed by Englert, Carol and Tarrant, (1994). The children were described as having average or above average ability but with receptive and expressive language difficulties. They examined the efficacy of two interventionist approaches. The first was POSSE ( Predict, Organise, Search, Summarise and Evaluate). This was designed to exemplify the scaffolding metaphor. Englert et al stressed that contained in POSSE were the notions that knowledge has cultural and social origins (Bruffee,1986), that cognitive functions originate in interactive dialogue (Vygotsky,1978) and that a child's cognitive development is enhanced through problem solving as teachers support children in the ZPD. The POSSE sample learnt to use reading strategies such as summarizing, predicting, organizing facts and evaluating their responses. Findings from the POSSE research were compared with K-W-L : What we know, what we want to find out and what we learned and still need to learn (Ogle,1986, p.8). K-W-L, like POSSE focused on similar comprehension strategies, however,

the children were asked to complete worksheets whilst following the basic concepts contained in the acronym K-W-L.

The efficacy of both approaches was determined in terms of children's comprehension of text used during the trials and of novel texts. The performance of the POSSE children was superior to that of the K-W-L children. The researchers concluded that the more effective teachers were seen to model comprehension strategies, use graduate questioning and made an effort to involve children in group discussions. The authors also concluded that POSSE was more open to children's interpretation of events and more collaborative and interactive. This would tend to endorse Palincsar et al's (ibid) view that pupil teacher interaction and collaboration enhances pupils' learning. This study is also valuable because, as with the previous study, the researchers were keen to monitor children's contributions within teacher-pupil interactions as opposed to just noting what teachers say during scaffolding. The samples used to assess both approaches were described as children with 'mild reading disabilities'. The children also had receptive and expressive language problems. This study is therefore valuable as the children showed some symptoms experienced by children with Dyslexia, although their reading difficulties were not as severe as we might expect of children with Dyslexia.

A more recent research paper by Mariage, Englert and Garmon, (2000) examined how teachers in classrooms scaffolded the performance of children with learning difficulties. They observed how language was used to assist

performance, the nature of language between tutor and tutees and how responsibility for their own learning was transferred to pupils with SpLD. The results of the Early Literacy Project (ELP) (Englert, Garmon, Mariage, Rosendal, Tarrant and Urba, 1995) had an important impact on the progress of the cohort with SpLD in reading and writing. Mariage et al. (2000) examined the effect of the implementation of the ELP intervention programme. This involved an investigation of the consequences of using dialogue in order to support the learning of educable but mentally impaired children with limited oral skills.

They examined ways of promoting cognitive development in these classrooms. Their primary interest was the importance of talk. The researchers argued that teachers frequently underestimate the impact of classroom talk, consequently, key opportunities are missed that might enhance social and cognitive development. Before the ELP intervention the children - with language deficits - had been expected simply to respond to the teacher's questions. ELP teachers used instructional 'moves' (Mariage, 1995) such as questioning and modeling (Bos and Anders, 1990), working at the periphery of children's understanding and verbalizing thoughts (Lenz, 1989). The researchers cite the example of a child with limited oral language skills being encouraged to discuss the events of the previous weekend on a Monday morning. The child initially responded by smiling and nodding. The teacher then asked the child if she had watched something special on TV. The child said that she had. The teacher proceeded to name television programmes and the child responded. The authors suggested that the teacher,

the 'more knowledgeable other' was thus scaffolding the child's performance through dialogue. The teacher was also adjusting the levels of support and consequently enabling the child to retain ownership of the conversation.

In another instance a teacher asked a child whether she would like to ask a friend for help. This afforded the child further control of the situation and involved other pupils in dialogue. And so the teacher's role changed to that of facilitator. In another lesson where older children with learning difficulties were encouraged to take more control, the class had disagreed on how to construct a sentence. The teacher gave minimal instruction but repeated parts of pupil responses. This enabled the children to think carefully about their phrasing and be self critical. They were subsequently seen to assume authoritative roles and to challenge the responses of peers. The teacher thus encouraged self regulation and self monitoring in this cohort.

This study is valuable but these children had low overall ability together with specific deficits in hearing. Therefore, they were not strictly speaking, SpLD children. However, they did share some of the difficulties that are experienced by children with SpLD. These included teachers questioning the children in order to encourage children to voice their opinions and to talk about anecdotal events. This suggests if teachers succeed in doing this then children can acquire confidence and enhance self esteem. In this way cognition can be seen as dependent on interpersonal and emotional elements a teaching and learning relationship.

Although the children were not strictly speaking SpLD pupils, the study revealed modes of effective scaffolding and how scaffolding can accommodate serious cognitive difficulties. The study was also relevant because the researchers were assessing the importance of scaffolding by examining classroom discourse. However, the ELP programme was an intervention programme, it only looked at English lessons and so did not address questions of scaffolding being 'subject specific'. Furthermore such programmes set out to test their efficacy of certain approaches. Researchers were not therefore establishing what was happening in naturalistic situations.

To summarize this section: modeling of tasks was found to be an effective scaffolding strategy in SpLD classrooms but it was important to achieve mutual understanding initially. The comprehension skills of children with specific learning difficulties were enhanced when researchers implemented the POSSE programme. The ELP intervention research programme found that it was beneficial to encourage children with language deficits to enter into discussions more freely through effective questioning, verbalizing thought and modeling appropriate language. The scaffolding strategies discussed in this section will be evaluated in the light of their usefulness in SpLD contexts in Section 1.7. The following section examines teachers' strategies which serve to maintain feelings of self worth in children with learning difficulties. The writer also presents the views of authors who have written prolifically about the importance of self esteem and the link between it, social context and progress in learning.

### **Self Esteem and Specific Learning Difficulties**

Rogers (1961) believed that self concept developed as a consequence of interacting with others whilst acquiring awareness of ones existence and how we functioned. This notion is linked to Maddi's (1996) suggestion that individuals strive to be what they believe they should be. Rogers, (1959) describes this process as self actualisation. If individuals did not achieve this, then incongruence developed between what they actually achieve and what they believe they should achieve. Gurney, (1988) suggests that comments by significant adults, such as parents and teachers, to children are likely to affect the development of their self esteem. Gurney argues that because young children's self esteem is not fully formed, comments from adults are likely to influence children's self concepts at that point in time. In later adolescence, Gurney suggests that children have a better understanding of their self concept and seek evidence to confirm their beliefs. However,

"Positive comments may be accepted less readily by children with low self esteem than those with high self esteem." (Gurney, 1988, p.15).

Children with Specific Learning Difficulties are therefore vulnerable to low self esteem because they are able children who frequently underachieve academically.

Katz, (1995) also suggested that children's self esteem was dependent on how they were perceived and judged by significant adults and peers, and arguing from the same premise, Riddick, (1996) suggested that children developed self esteem if they were accepted and made to feel important by

adults and peers and that the process begins at home within the family. This was seen as an interactional process with the child influencing the environment and the environment influencing the child.

Lawrence, (1985) argued that in the field of Specific Learning Difficulties, children's self concepts and achievement skills were linked. This notion is supported by Borkowski and Willows, (1980) who found that that when compared with competent readers, poor readers gave up more easily if tasks were difficult. Furthermore, whereas good readers attributed success to ability, the poor readers attributed success to luck. This supports Abramson, Seligman and Teasdale's, (1978) theory of the trait of "learned helplessness" in children with learning difficulties. The authors suggest that when children are told that they have Dyslexia or ADHD for example, they learn to depend on helpers because they feel that it is something that they have a condition that they cannot control.

Research by Gurney, (1988) indicated that poor readers were likely to have low self esteem, poor motivation and were unlikely to persist when faced with challenging tasks. This was because they feared failure and did not perceive themselves as being capable of succeeding. One could conclude that if low self esteem is linked to low achievement then children with Specific Learning Difficulties are particularly vulnerable. However such children need to be identified before they can be helped. There are several ways of measuring self esteem:



- The LAWSEQ questionnaire (Lawrence, 1982) is a useful and informative means of assessing to what extent children's low self esteem impacts on their learning. Questions include "Are you good at Maths?" and "Do you like Creative Writing?". This may establish that pupils are interested in Art but not able to meet targets in Mathematics.
- The Q-Sort consists of a hundred cards containing statements about the self e.g. "I am always sad" or "I am always happy". The child's self perception is determined by the first ordering of the cards. The second ordering is an indication of how children would like to be.
- The Coopersmith Self Esteem Inventory (1975) asks children to respond to the statements "unlike me" or "like me".

If a degree of self esteem is established through such methods of assessment then classroom interactions would seem crucial to its development. Pumfrey and Reason, (1991) stress the importance of providing support and advice in classrooms. Katz, (1993) suggests that teachers can address children's underlying problems but that just asking children to repeat aloud that they are worthwhile is not effective. Research by Lawrence, (1985) found that when counselling sessions were introduced by remedial teachers, pupils' self esteem and reading skills improved. Renick and Harter, (1989) found that if children with Learning Difficulties were taught in separate ability groups they tended to have higher academic self esteem than those taught in mainstream groups, although their social self esteem remained the same.

Pumfrey and Reason, (1991) argue that one should not ignore the importance of social milieu at home. They suggest that tension frequently exists within families when children have learning difficulties. Ravenette, (1997) cautions that if a child is labelled 'dyslexic' then the child could be permanently disabled because the label per se could be a barrier to learning. Contrastingly Miles, (1988) argues that the label could be helpful because it might help parents and children make sense of it, remove self blame and allow for the possibility for counselling parents and children. Such intervention could contribute towards the enhancement of children's self esteem. On reflection such a review suggests that self esteem and its maintenance is likely to be a factor that will impact on the way teachers support children with SpLD and as such, that it is inevitably linked to 'intersubjectivity' between tutor and tutee.

### **Evaluation of 'Scaffolding' in the context of Specific Learning Difficulties**

The review of the literature so far has highlighted existing research in relation to scaffolding, and described the nature of the difficulties experienced by children with SpLD. In this section, each of the elements of successful scaffolding identified from the review will be considered with respect to whether such strategies might be problematic in the case of a teacher attempting to work with children with SpLD.

One element of successful scaffolding was teachers working within a child's 'RSI' (Region of Sensitivity to Instruction), (Pratt, Green, MacVicar and

Bountrogianni, 1992). The mothers in this research project provided the kind of assistance which was just one level above the children's current level of success. Theoretically, teachers, would identify this level because it would be at the success/ failure boundary or when children had successfully completed a task and were ready to proceed to more demanding work. This could be a useful strategy for children with SpLD in very small groups as opposed to large groups because teachers are more likely to be familiar with individuals' needs. However, it may be difficult in practice because it will be recalled that children with SpLD are a heterogeneous population (Wood Sheehy and Passenger, (in press). Consequently, the teacher may be faced with scaffolding children with different forms of learning difficulties at the same time e.g. one child may have forgotten what he or she knows whilst another may have difficulties verbalising current knowledge. This strategy would therefore be inappropriate in the context of SpLD.

Another element of successful scaffolding, 'Temporal contingency' (Wood, Bruner and Ross, 1976), is closely linked to RSIs . This approach concerned 'timing' e.g. if children were succeeding teachers would offer less help, whereas more help was given if they showed signs of failing. This is closely linked to 'tutor distancing' (Wood and Middleton 1975) where children were encouraged to be independent if they were succeeding. However, as discussed in the previous section, children's self esteem is an issue in SpLD (Gurney, 1988). Therefore, strategies would need to be sensitive to children's self esteem issues and task difficulties in particular because when compared with competent children, children with SpLD give up more easily as tasks

become more difficult (Borkowski and Willows, 1980). And so, 'temporal contingency' would be applicable for children with SpLD because on reaching this stage, they would experience success, which would in turn, enhance self esteem. Research by Swift and Gooding, (1983) established that if teachers paused between questions in Science lessons, the children were more responsive. This form of support may not be appropriate for children with SpLD because children could lose concentration during pauses and may forget what had been asked.

'Truncating' (Rogoff and Gardner, 1984) is also linked to contingency. This describes how teachers abbreviated information e.g. they might simply ask what a child was going to do next. Again, the success of this approach in SpLD contexts would depend on the nature of the learning difficulties being experienced. It would also depend on a child's current knowledge of the subject, how the teacher established this and the nature of the child's specific learning difficulty. One could argue that an empathetic teacher is unlikely to ask a child to proceed on his own if there is a risk of failure. Consequently, 'truncating' as a strategy may not be appropriate in SpLD contexts.

The element of intersubjectivity, also referred to as mutual negotiation, in Newman, Griffin and Cole's, (1989) study, focuses on working towards mutual understanding or intersubjectivity between pupils and teachers but with teachers initially doing most of the work. Mutual negotiation involves teachers questioning children in order to establish what they knew at that point, so that teachers could then proceed to give new information. Pupils

would gradually assume responsibility for the task whilst sharing information with peers. Fleer's (1992) notion of 'mutual understanding' is similar to 'mutual negotiation'. The researcher's observations of teacher scaffolding in science lessons revealed that 'mutual understanding' between teacher and pupil led to the handover of new concepts.

If mutual understanding is to take place it must be preceded by negotiation. However, Tharpe and Gallimore, (1990) argued that the concept of 'mutual negotiation' placed too much emphasis on the role of the teacher and the fact that it portrayed the child initially as a passive recipient of information. Consequently, it could be argued that the term 'mutual' is misleading. The approaches of teachers in SpLD classrooms would need to be influenced by the nature of the pupils learning difficulties. Furthermore, one could suggest that if children with SpLD are questioned in front of peers and they do not know the answers, they are likely to lose self esteem (Melck,1986). As a result, there may be limited scope for using 'mutual negotiation' as a strategy for children with SpLD unless this is linked to other supportive approaches.

Edwards and Mercer, (1987) found that IRFs (Initiation Response Feedback) were effective modes of scaffolding. A teacher initiates an interaction by questioning and offers feedback to a child's response. IRFs are closely linked to Mehan's, (1979) description of 'IREs' where pupils responses were evaluated. These strategies are likely to be effective in an SpLD context if children are given adequate feedback. This is because such children are

frequently 'concrete' thinkers and cannot abstract meaning (Simmonds and Singleton, 2000). Furthermore, children who find it difficult to attend might not be listening to teachers' feedback. Linked to these strategies are Mewborne and Huberty's, (1999) belief that children's responses should be carefully assessed by teachers so that they are more aware of pupils' needs. The researchers also found that asking pupils to explain their thoughts in front of peers enhanced self esteem. Giving such opportunities to children with SpLD could be viewed as valuable scaffolding if the questions were structured in such a way that children were more likely to respond accurately. However teachers would need to ask questions to which pupils are able to give appropriate responses.

Edwards and Mercer also stressed the importance of 'special enunciations' by teachers when specific elements needed to be understood by children. For example a Mathematics teacher might say, " This side of the triangle is *longer* than that one". However, problems could arise in SpLD classrooms if children were inattentive and may not recognise the significance of 'special enunciations'. This is because children with SpLD often have semantic/pragmatic difficulties and this would limit their sensitivity to such techniques.

Edwards and Mercer's,(ibid) study observed the use of 'we' by teachers. This strategy involved projecting the feeling that teacher and pupils were recapping information and proceeding together. This could be a useful strategy in SpLD classrooms, because if children with poor short term

memory were unable to remember what they had learnt in previous lessons, they would be given this information without asking. Furthermore, if the teacher was aware of such problems it would be a useful strategy at the beginning of lessons. However, one could argue that the use of 'we' could be a device that assumes knowledge on the part of the child without verifying that the child has genuinely remembered or understood. But use of inclusive 'we' could be usefully deployed for children with SpLD if it was used to reassure children that they would not be exposed, and even that they were accepted as part of a 'group' (Riddick, 1996).

Edwards and Mercer, (ibid) stress the importance 'paraphrasing' information given by pupils. This is linked to the concept of 'IRFs' because it gives teachers opportunities to confirm children's responses and to reformulate these in more acceptable forms. 'Reconstructive recaps' (Edwards and Mercer, 1987) by teachers are linked to 'paraphrasing' but the teacher is seen to respond to a child's response by confirming the response but at the same time introduce more accurate terminology. The researchers observed that if teachers did this using questioning tones, children were likely to agree but at the same time feel that they had been accurate in the first place. This would therefore be an appropriate strategy for SpLD children because they would not feel that they were being openly corrected, rather, that they were correct in the first place. 'Paraphrasing' would be appropriate for SpLD children because their contributions would be seen to be acceptable and they could be corrected in subtle ways by teachers.

Finally, another element of scaffolding was identified by Wood, Bruner and Ross', (1976) research with mothers and children. This identified advantages of 'modelling' tasks e.g. completing block puzzles and then asking children to carry out the tasks. This strategy would be applicable in practical areas of Mathematics particularly in the case of children with attentional problems because it would be a means of capturing children's attention. However Bandura, (1977) cautions that although modelling is particularly important form of tuition he emphasised that modelling should be followed by some kind of positive consequence in order to affect the child's motivation to copy. Bandura (ibid) also stressed that children cannot imitate a model unless they attend, so this strategy may be problematic if children with ADHD are required to maintain concentration for a long time. However, one could argue that explaining through demonstration would be facilitative for pupils with speech deficits because they would be attending visually as opposed to having to ask questions. This suggests that modelling would be an appropriate strategy for children with SpLD but it would depend on what was being taught and the nature of the learning difficulty.

The review and synthesis of the literature suggests that scaffolding in SpLD contexts, whilst possibly sharing some of the characteristics of mainstream scaffolding, must also differ inevitably from it, because elements of commonly used techniques may not work with these children because of their learning difficulties. This would suggest that teachers of children with SpLD may develop alternative strategies to help control these 'gaps'. A key element of these strategies must recognise the social and emotional



difficulties experienced by these children, as well as their cognitive difficulties which necessarily mean that some curricular areas will prove more difficult than others.

### **Subject Knowledge**

A recurrent theme from the review of the literature indicates that curricular areas may necessitate potential variations in scaffolding strategies and that successful learning outcomes are dependent on the merger of social and cognitive aspects. For example, in observations from CDT, Science and Mathematics lessons, Bliss and Askew (1996) suggest that scaffolding in the former is easier for teachers because children have some previous knowledge of the subject. This suggests that teachers can question children more freely because they are more likely to respond accurately. This creates opportunities for teachers to praise children's contributions. Elicitations from children in such instances are also likely to be varied as they draw on prior knowledge. This could also apply when preparing to write stories in Creative Writing. Bliss and Askew's interviews with teachers revealed that many lacked confidence when teaching Science and Mathematics because they were themselves unsure of the concepts. This suggests that teachers' scaffolding may vary depending on which subject they are teaching.

It was noted that only one study, (Bliss and Askew, 1996) had explicitly compared teaching strategies in different curricular areas. However, although the researchers established that teachers' approaches were different in areas such as Science and Mathematics from CDT, they did not categorise

the strategies used by teachers, indeed, the researchers suggest that this needed to be done. Furthermore, the teachers were interviewed before and after observations so the participants were not entirely naïve. By this I mean that the teachers may have responded in an expected manner. The research was also carried out in a mainstream setting, and it has already been argued that teachers are likely adopt different approaches in SpLD contexts. Given the researcher's interest in specific learning difficulties, and the way that this could impact on motivation and prior knowledge, this notion is worthy of further investigation. This suggests that research to date has not fully explored what scaffolding approaches teachers adopt in SpLD classrooms and whether these strategies vary in certain curricular areas.

Furthermore, the researcher is keen to establish that because children's motivation and prior knowledge varies in different subjects, whether this impacts on modes of scaffolding to such a degree that they will need to be different.

### **Concluding Remarks**

The scaffolding metaphor defined earlier by Wood, Bruner and Ross, (1976) connotes a framework within which children realise goals which they would normally find too difficult without the assistance of a more knowledgeable adult. In earlier research on scaffolding (Wood and Middleton, 1975), parent-child dyads were observed in experimental settings whilst participating in researcher designed problem solving tasks such as completing block puzzles. These did not however evaluate the dynamics of

the interactions and presented a picture of a child as a passive recipient. Later studies, such as Wood et al, (1978), whilst attempting to operationalize the concept of scaffolding, found that when children were offered contingent instruction, they were able to work more independently on the same tasks than those children who were not offered contingent support. However, Wood et al's experiments focused on parents with children. Parents are on the whole privileged because they know their children, are better able to predict their thoughts and are therefore more likely to offer contingent instruction. Wood, (1986) conceded that contingency is more likely to occur within families at home. This also suggests that intersubjectivity is more easily established in family contexts. And so how do teachers achieve shared understanding with classes of children, whom they do not know intimately? This situation is further exacerbated in SpLD classrooms where children frequently misunderstand instructions or have attentional problems. It was noted earlier that researchers have largely ignored the child's role in learning. Arguing from the same premise, Hoogsteder, Maier and Elbers, (1996) whilst observing adult-child dyads, observed some toddlers disagreeing with adults whilst others shared information and participated in decision making. The researchers suggested that children thus learn how to cooperate with others during joint problem solving activities. However, their observations of parent or caregiver-child dyads at home during single interactions cannot be equated with classroom interactions between a teacher and a number of pupils.

Of course SpLD classes tend to be smaller but teachers in these areas need to scaffold the learning of children with varying problems at the same time. It is therefore dangerous to assume that interactive styles which are successful in one context will also be appropriate in others.

Given that research to date has not examined closely the dynamics of interactional processes in SpLD classrooms, the nature of efficient tuition cannot be determined without further scrutiny. However, research to date indicates that effective teaching per se necessitates the recruitment of a child's interest, mutual understanding of a task and assistance which is tapered to the child's needs so that responsibility can be handed over to the child. One could argue that in SpLD contexts these notions are frequently problematic because of the nature of the learning difficulties. However, even if a child fails to solve a problem, other interactional and linguistic skills could be learnt en route and deployed during subsequent events. Research studies to date have ignored the classroom instruction of pupils with SpLD (Keogh and Speece, 1996) and the possible differences in scaffolding strategies which might exist in different curricular areas.

With these notions in mind the research questions addressed by the main study will be :

- 1) What forms of support take place in SpLD classrooms? Should the scaffolding metaphor be redefined for the context of SpLD?
- 2) Are there differences in teachers' scaffolding strategies when teaching Mathematics and Guided Writing?

## **Chapter 2: Methodological Framework**

This chapter will trace the history of investigative research methods used to study the scaffolding of children's learning in different contexts over the past three decades. A critique of the methodology should help to shed light on the most appropriate means of operationalising and addressing the research questions in the main study.

The methodological framework needs to identify and define how teachers in SpLD environments scaffold the learning of pupils in two subjects, Creative Writing and Mathematics. It will be argued that this can only be addressed by observing "real life" lessons. In such situations the teachers would not follow a researcher's prescribed instructional format in order to examine children's responses to given instruction but would be observed responding naturally to and eliciting responses from pupils.

An increasing number of psychologists have used the term 'scaffolding' metaphorically over the past 20 years in order to explicate the way in which adults steer and support children's learning and development (e.g. Wood, Bruner and Ross, 1976, Stone, 1998). This research project aims to illustrate how the learning of children with SpLD is supported by teachers and to what extent those interactions are consistent with existing definitions of scaffolding.

The quintessential constituent of any research project is data collection.

Research methodology should be closely linked to the nature of the research questions to be addressed (Manstead and Semin, 1988). But which methods of collecting data are deemed most appropriate in the field of educational research - particularly classroom research?

Educational reforms in the late 80s highlighted the relationships between the purpose of research, policymaking and educational practice. Consequently there was a marked shift in the late 80s and early 90s from nomothetic, quantitative methods towards qualitative hermeneutic approaches (Thomas, 1991). A nomothetic approach is akin to that of the physical sciences which use methods that are objective, empirical and which frequently study cause and effect. Studies using such approaches are usually assumed to be replicable. An hermeneutic approach (the study of meanings) is concerned with "the nature of people and of the nature of the relationship between individuals and society" (Thomas, 1991, p.109). Hermeneutics is a different approach from establishing and explaining human behaviour:

"its subject matter is subjective experience its practice is intrinsically bound up with the methodological problem of subjectivity - something that science has been at pains to minimize" (Thomas, 1991, p.111).

But although educational reforms in the late 1980s and early 1990s resulted in new pressures and constraints on teachers, they also created new opportunities for educational researchers. Most importantly they questioned the purpose of research and how it related to policy making and practice. This resulted in a shift towards the use of qualitative methods. It did not

simply herald a change in technique; rather, it also changed notions about the purpose and nature of research studies. Traditionally the purpose of educational research was to provide valuable information to policy makers and practitioners. However it is now felt that there is a need for greater direct involvement with educational practice (Thomas, 1991).

Thomas suggests that ethnographers and other qualitative researchers, such as Erikson, (1968) have on the whole criticised research studies which involved experiments and surveys, arguing that these are artificial in the sense that they trivialise and impose researchers' interpretations onto situations. Generally it was felt that while quantitative research was dealing with scientific paradigms, it ignored the detailed, rich subjective accounts of specific situations for their own sake. Ethnographers aimed to view the whole situation and to investigate the nature of situations normally taken for granted. Their favoured naturalistic approaches endeavoured to disturb teaching and pupils as little as possible. Qualitative approaches reject the positivistic notion that there is a 'true' answer; rather they favour subjective accounts of situations in order to highlight important aspects of that situation at that point in time.

Current approaches to educational and psychological research originated in the natural sciences. However, there was a marked shift away from behavioural approaches. That is, researchers have focused on human behaviour which can be directly observed and measured (Sapsford,1991). Educational research is often problematic because the subject matter, i.e. the

behaviour of teachers and children and their relationship to the processes of teaching and learning, is ambiguous and open to interpretation. It does not lend itself to precise measurement and

"...will not hold still enough to be divided into categories both measurable and relevant" (Erikson, 1968, p.43).

It is also

"...compounded by the fact that the subject matter itself - people's conceptions of reality and their actions and the relationships - are themselves constructions ....what washes in one context may not in another". (Stevens, 1991, p.107).

Reflecting on these views, Stake (1978) suggested that it is possible to use the findings of one situation to understand interpretive accounts in other similar situations. Although one should not assume that what happens in one classroom is typical of others, one could argue that descriptions and explanations of what is happening should provide a 'typical' representation of educational practice and be useful to policy makers who are involved in policy changes. Cronbach, (1982) argued that generalisability (to produce universal laws) is not the prime concern of qualitative researchers. Others, (Denzin, 1989) stress the importance of 'thick description' which enables researchers to search for differences and similarities between situations:

"The findings themselves are not part of the thick description, though it must be interpreted in their light".  
(Robson, 1993, p.405).



Taking a slightly different stance, Stone, (1998) argues that we need to identify the operative dynamics that account for effective pedagogy. Stone also advocates the objective analysis of effective implementaton as opposed to hypothesised versions which might ignore the former. He favours the pluralistic approach of Green and Harker, (1988) who invited notable classroom discourse researchers to analyse a single videotaped classroom lesson. The researchers defined a lesson as:

“a product of the interaction among participants (teachers, students, text / metascripts) as they work together to meet the goals of the curriculum.” (p.12).

Each scholar provided an analysis that was grounded in the data and theory in order to identify which operative dynamics were present in the lesson. A similar approach would provide interesting data in the field of learning difficulties. These views accord with the aims of my study in that data collection involved naturalistic observations and transcripts of observations which could later analysed by other researchers. (Appendices 1 - 13 incl.)

Stone also cautions that it is often assumed that children with specific learning difficulties are passive recipients (see also Biemiller and Meichenbaum, 1998; Butler 1998) and that consideration of interpersonal dynamics might offer some insight into why or by what means such children become active participants. These notions are again linked to the aims of my study because it sets out to highlight effective scaffolding.

In the following section the writer gives an account of intervention studies where children's responses to such intervention by trained instructors were noted.

### **Intervention Studies**

Vygotsky (discussed in Chapter 1) proved to be a superior impetus for the 'scaffolding' metaphor. However, he did not refer to the term 'scaffolding'. The metaphor was applied by Bruner (1975) to describe parent-child communicational interactions which preceded language use. However the initial detailed exploration of the metaphor appeared in the paper by Wood, Bruner and Ross, (1976). This described the support given by adults to enable children to complete tasks such as block building activities and which would normally be beyond their ability if working alone. Such intervention by trained instructors consisted of direct assistance, verbal prompts to continue in the same vein if successful, and verbal assistance when the child made an error. Sessions were videotaped and results tabulated. In this way the researchers could establish which kind of 'scaffolded' instruction was most effective amongst different age groups. So although the nature of adult assistance was scrutinised, the methodology used was experimental in the sense that trained instructors (not teachers) had previous knowledge of the aims of the research and knew why and what aspects of their instruction was being observed as they helped children at different stages of completing block puzzles.

A more naturalistic version of this research followed in 1978 by Wood and Middleton. However, this was similar to the previous study in the sense that it was an intervention study. The researchers were trying to improve the quality of scaffolding by training adults to test certain approaches in order to highlight the most efficient strategies. They set out to analyse the levels of intervention of mothers and how this changed with children's different responses to them. The mothers were told how to assemble the toys and subsequently how to instruct the children to complete the tasks. They were told to allow their child to play with the blocks for a short time and then to demonstrate how to assemble the block puzzle in any way they saw fit. They were then told to unfix the blocks and to ask their charges to assemble the puzzle alone. Each session was videotaped and each level of intervention tabulated. The video recordings were transcribed and analysed according to five main measures:

- Levels of intervention (e.g. general verbal instruction, specific instruction, indications, provision of material and demonstrations).
- Frequency with which each mother used each of the above. The Region of Sensitivity to Instruction was determined by the level at which each child failed to understand instructions.
- Level of mothers' contingency. The success or failure to follow instructions was recorded. The researchers then calculated how often mothers were seen following the pattern: " if a child succeeds, offer less help when next intervening. If he fails offer more help"(p 185). The

'sensitivity to feedback' measure was determined by dividing this total by the number of cases.

- The Probability of an Activity Appropriate Construction was determined by noting the number of times a child chose the correct pieces for assembly and presenting this number as a proportion of the total number of attempts.
- The probability of error rejection by the children was established by noting how many errors the child instantly rejected without aid.

The research began with the hypotheses that relationships would be established between certain types of instruction and children's subsequent actions. The correlation between certain actions were then isolated. On the basis of finding that successful mothers had changed their instructions according to how the children had responded in earlier interventions, the researchers concluded that the process of cognitive development was social and interactive in nature. Such mothers were also more likely to work within the child's "region of sensitivity to instruction" (Wood and Middleton, 1975 p.181). Results showed that children performed successfully after instruction if mothers had altered instructions according to their child's response.

In a later intervention study of adults with 3 and 4 year olds by Wood, Wood and Middleton, (1978), researchers manipulated the existence and /or the intensity of certain hypothesised aspects of scaffolding processes in order to ascertain their relative importance with three to four year olds. The strategies

were based on previous block assembly activities with mothers and children. They observed trained instructors using four scaffolding approaches deemed to be effective. These consisted of demonstrating the task to a child, verbal instruction, a combination of both verbal and instructional and working contingently with the child. The researchers predicted that the 'contingent' group would perform better than others. Children were seen alone and each session was video taped. Data were coded and analysed in terms of how the children performed after instruction and the instructors' teaching preferences i.e. to what degree the rules laid down had been followed. The research was therefore seeking evidence to support hypotheses and in this sense it was not trying to establish what might happen naturally between teachers and pupils. However, seeking evidence to support the notion that contingent support is effective is useful. But what kind of support would be viewed as appropriate in SpLD contexts? This is addressed in the following paragraphs.

Gallimore, Dalton and Tharpe, (1986) were part of the major educational research programme KEEP ( Kamehameha Early Education Programme 1982). The programme's objective was to develop and implement effective reading teaching for high risk Hawaiian-American primary children. The methodology involved quasi-experiments and experimental designs. The KEEP teachers were instructed and trained to follow specific teaching strategies. Interviews with the teachers were audio taped. This yielded data on question types, occurrence of praise and time allowed for comprehension. One could suggest that this study is similar to the present research because the children were atypical. However, although behaviour was observed and

filmed, settings could not be described as naturalistic because the teachers were trained to offer prescribed kinds of dialogic scaffolding. That is to say the teachers were informed of the aims of the programme and ways of scaffolding were suggested to them. It therefore connotes the notion of cause-effect methodology as opposed to establishing what goes on under normal every-day conditions in classes of children with specific learning difficulties. If we are to establish exactly how teachers in these situations scaffold the learning of atypical children we must simply observe classroom practice as naturally as possible. And so data from the KEEP project although informative did not reflect what goes on naturally.

However, very little research on scaffolding has been carried out in SpLD classrooms. But, for Vygotsky, the founder of cultural psychology and the belief that human behaviour is the subject of cultural as opposed to natural processes (Ratner, 1991), special education was the testing ground for many innovative ideas (Gindis, 1999). There is a certain irony in the fact that so few researchers since Vygotsky have focused on scaffolding in SpLD classrooms.

However, the efficacy of different forms of scaffolded instruction with low ability children was the focus of the research by Palincsar, (1986). The researcher was keen to establish how teachers can assist (nudge from one level of understanding to the next and towards self-regulation) in the zone of proximal development (Vygotsky, 1978). This study was interventionist in approach in the sense that the teachers were provided with specially

designed metascripts (Gallimore and Tharpe, 1983). These were verbal instructions offering general guidelines and strategies although they did allow teachers some scope for responsive instruction.

Palincsar concludes that such observations allow researchers to isolate the successful features of scaffolded instruction. It is interesting to note that the researcher concluded her paper with a quote from a teacher who participated in the study:

"I've never heard of scaffolded instruction, and I don't remember ever learning about how teachers and students should talk to one another. I just always try to start on familiar ground...and to remember that there is room for individuality in how children think" (Palincsar, 1986, p. 96).

This highlights the necessity to observe scaffolding in order to make explicit what is implicit in pedagogy and to make teachers aware of the benefits of successful scaffolding.

The nature of successful scaffolding of children with learning difficulties was explored in the instructional research of Bos and Anders, (1990). The researchers aimed to scaffold the reading development of students with learning difficulties. The design of this study was similar to that of Palincsar's research in that the teachers were trained to test the efficacy of prescribed teaching approaches. Observations were carried out in science and social studies. The researchers did succeed in highlighting the essence of scaffolded instruction in effective pedagogy. These findings are useful in

that they, like Palincsar's study, show how scaffolded instruction can enhance the learning of atypical learners. However the study does not address the question of what actually goes on in SpLD classrooms on a daily basis in the absence of researchers whose mission is to test hypotheses.

Intervention studies are useful because they characterise one experimental, quantitative approach to looking at the nature of effective scaffolding. However for the purposes of this study the aim is not to examine the effects of certain interventions, rather, to identify the different modes of scaffolding that teachers deploy in SpLD classrooms where there is no planned intervention of any kind. The writer now turns to researchers who observed adult-child interactions during naturally occurring events.

### **Observational Studies**

Attempts to identify successful scaffolded instruction continued in the 1990's and mainly stemmed from constructivists' paradigms. That is to say that

"the central concern is pupils' own needs and the framework is the existing cognitive and effective structures". (Gomm and Woods, 1993, pp. 56).

As such, teachers were seen as facilitators who encourage children to construct their own learning, in line with Piagetian traditions.

However there are dissenting voices. Ireson and Blay, (1998) investigated adult-child interactions during naturally occurring events in a preschool environment and how activities were influenced by both adults and infants.



Young children emerged as active participants. This research contrasts with the previous studies of mother-child dyads such as solving block puzzles (Wood, Wood and Middleton, 1978, Wood, Bruner and Ross 1976) because these researchers had no predefined hypotheses. The play leaders had chosen the tasks. The analysis focused on adult-child interactions and emergent scaffolding strategies during open-ended Lego activities. Comparisons were made between data collected from a playgroup leader working with five children individually and a second playgroup leader doing the same thing with three of the children. Two of these children had done the task with the first adult but the third was new to the task. The research aim was to collect data from the two children with both play leaders and to compare interactive patterns of both adults during an activity which typified play group activities. Interactions were audio and video recorded and transcribed. A coding scheme was used to indicate activity foci and how participants maintained or changed foci. Although the analysis was quantitative, it did highlight the more successful support strategies. However it would not be applicable to the current research because even within small groups of children in SpLD contexts tasks are governed by a curriculum and as such, unlike Lego building, are frequently novel leading to more dynamic interaction.

Further quantitative observations of classroom verbal interactions by Flanders, (1970) revealed that someone was talking for 2/3rds of the time in the classrooms but that 2/3rds of this was teacher talk whilst 2/3rds of this consisted of questioning and instructing. Data collection involved recording

the number of times teachers responded to children's statements. Flanders was not concerned with the richness and qualitative aspects of verbal interaction, rather the frequency at which they occurred. Furthermore, the researchers noted frequency as opposed to attempting to capture the nature of specific teaching episodes. And so, contextual factors and other determinants of pupil and teacher contributions to lessons, which may have shown classrooms as dynamic and interactive environments, were ignored.

However, researchers such as Marilyn Fler, (1992) focused on establishing the most successful type of interactional discourse used in science lessons in order to discover ways of enhancing cognitive development in children. Children in this study were interviewed before, during and after the science units in order to establish their scientific understanding. Data collection consisted of audio and video recordings which were transcribed. A qualitative analysis of teacher and pupil discourse was carried out in order to note the different interactive behaviour. This data allowed researchers to establish the nature of teacher questioning which was most successful in engendering alternative cognitive pathways in children. The latter was verified through interviews with children. Although this study was carried out under naturalistic conditions that is, in classrooms, where the children are familiar with their surroundings, the researchers had preconceived aims in mind. For example, they 'knew' which dialogic strategies advanced children's scientific thinking. In other words, the data were used to test existing assumptions; the data did not 'generate' new theory and so the element of discovery was absent.

However, research by Bliss and Askew, (1996) did seek to explore the different modes of teacher scaffolding (instructions to facilitate children's understanding) in mathematics, science and design and technology lessons. Methodology included detailed observations of a small number of teachers during four school terms. Data from video-taped recordings of lessons and field notes from observations in the three areas were analysed qualitatively in order to trace the progress of pupils. The progress of pupils with teachers in the three area was monitored. Teachers were interviewed before and after lessons. The teachers discussed their lesson plans and expectations with the researchers before the lessons and subsequently assessed these. Pupils were also questioned to establish whether their perspectives matched those of the teachers. Participants were asked to comment on the lessons subsequently in order to determine whether teachers' and pupils' perceptions matched. The researchers were also interested in whether the teacher could identify where scaffolding had taken place and to identify possible differences in scaffolding strategies in the different subject areas.

The teachers admitted that implementing a planned form of scaffolding was very difficult. In fact researchers observed very little evidence of scaffolding per se. When scaffolding was used it tended to be in "one to one" situations. Teachers however had labelled nearly every instruction as scaffolding. Researchers concluded that although teachers could talk "scaffolding" (ibid p.8) their conception of scaffolding was not so much pupil learning, rather it was about imparting facts in order to fulfil the ever increasing demands of

the curricula. The teachers and researchers had discussed the aims and nature of the research study beforehand, consequently participants were not naïve and might therefore have tried to implement scaffolding strategies which they might not normally consider.

It is interesting to note that previous knowledge of the research focus did not in fact result in scaffolding strategies being observed. However the teachers knew that the presence of certain aspects in their teaching would be analysed. Furthermore when children are interviewed it should be noted that they are never totally naïve when responding to researchers' questions regarding teachers.

The Bliss and Agnew study examined scaffolding in more than one curricular area and as such is similar to the current proposed study. However the findings were based on the effect of the implementation of a planned form of scaffolding. And so, should one seek a more ecological and socio-cultural approach to data collecting?

When behaviour is observed, there should be little room for value judgement. The researcher observes, records and analyses what people do and say. The directness of observational methods contrast sharply with questionnaire responses and interviews but these are notorious for inaccuracies in what respondents do or intend to do (Oskamp, 1997; Hanson, 1980) or as mooted by Montaigne "...saying is one thing, doing is another..." (Robson, 1993, p.91). There is also the possibility of bias and a respondent's

need to be seen in a good light. Observational methods would therefore seem to be better suited to seeing situations as they are and as such would provide the writer with opportunities to address the research questions. On reflection observational methods would be a suitable means of addressing the research questions in the main study.

But there are disadvantages to observational methods. One could argue that participants are never totally unaware of the researcher's presence. But researchers can attempt to become familiar with pupils before the onset of research projects and video recording equipment could be placed in classrooms beforehand. In any event an active researcher with video equipment will be intrusive particularly if children are easily distracted. Furthermore pupils' curiosity is inevitably aroused when lessons are filmed and some children will misbehave or may not be at ease during the observed lesson. Observations will never be entirely 'natural' but there is no way of knowing what the lesson would be like in the researcher's absence. Observations are also time consuming and there is much data to analyse. But of course there is no way of assessing the effects of such possible intrusive elements on the outcome. If a researcher participates then the research is not a truly observational study because it could be argued that the data might in some way have been contrived by the researching teacher in order to support a particular theory.

The research literature indicates that the methods of data analysis traditionally associated with scaffolding research to date have in the main

been quantitative and theory driven. In fact while studying for a Masters degree my initial attempts at analysis were also quantitative. The review of data collection techniques has indicated a need for naturalistic methods of data collection, and has also pointed towards the need for a method of analysis that is inductive in nature. In the following section I attempt to explain how a grounded approach to data analysis could be workable for the main study.

### **Data Analysis**

A 'grounded' approach to data analysis is not concerned with verification, rather with discovery. It is therefore difficult to predict outcomes because the basic tenet of this approach is that it is a break away from a priori theorizing that by using a Grounded Theory approach the emergent theories and the researcher do not remain unchanged. For the researcher, it should be experiential thus allowing new theory to emerge so that further action follows. However, by adopting this approach the researcher is faced with a plethora of unstructured data for close scrutiny. But this should give rise to new concepts, descriptive codes and categories. One could argue that inevitably, the researcher's analysis will be interpretive and subjective. Nevertheless, the researcher will need to ensure that the emergent categories do fit or give a familiar description of the data.

A grounded approach is based on 'Grounded Theory', which is a qualitative method of analyzing data, it "looks for what is, not what might be, and therefore needs no test" (Glaser, 1992, p.67). Glaser also insists that

grounded theory involves "figuring out from the patterns in the data what concepts and hypotheses emerge" (Glaser,1992, p.71). As such, grounded theory is inductive as opposed to deductive and theory emerges from data as opposed to forcing emergent data to fit existing theories. One would therefore not categorize data into existing coding analysis. Consequently one should not enter the research arena with a given coding scheme, rather in true inductive tradition, the coding categories would themselves emerge from the raw data. Glaser questions whether extensive coding is required at all in grounded theory. He also doubts whether verification has a place in grounded theory and that pre-conceived notions should not be played against data. So how should I collect the data which would address the research questions?

I began this research study without preconceived hypotheses but with a keen interest to establish how teachers scaffold the learning of children with Specific Learning Difficulties. I was therefore not seeking experimental data. If one is studying the behaviour of people it would seem obvious to observe what they do and analyze and render meaningful what is observed. It is this emphasis on subjective and imposed meaning (hermeneutics) that elicits criticism from hard headed positivists. I needed to examine closely, line by line what teachers say. I had decided not to interview the teachers or children as part of the main data collection phase of the project. However four participating teachers agreed to complete written questionnaires when observations were completed (Appendices 15, 16, 17). This was because I needed the participants to remain naïve throughout the ongoing research. I

preferred a naturalistic 'direct' approach. When interviewed, people sometimes say what they perceive to be accurate at that time and they may be influenced by what they think the researcher expects them to say ('sociable response bias' (Robson, 1999, p.191). However I was aware that even when people's actions are filmed in the absence of researchers the camera might still be an intrusive element because it is not a natural event.

Other qualitative analytic techniques have been used to examine the nature of tutor support in classroom settings. The most notable of these is that of discourse analysis. Discourse Analysis enables all classroom talk to be categorized, but it deals "most explicitly with the form of what is said, rather than with its content" (Edwards and Mercer, 1987, p.10). The analysis of expressed language is seen as a more appropriate means of assessing psychological processes and intended meanings than more traditional experimental, quantitative approaches (Burman and Parker, 1993). Edwards and Mercer used discourse analysis in their work to consider ways in which teachers controlled the learned discourse in the classroom. Discourse analysis is typically used to consider issues such as control, power, marginalization and implicit agendas. However, the research questions in this study were less politically laden - they focused on a simpler level of analysis that was concerned with capturing the range and nature of supportive devices (some of which may be non-verbal) used by teachers in the context of an SpLD classroom, rather than looking for the hidden agenda behind the use of such devices. Consequently, it was felt that Discourse



Analysis would be an inappropriate technique for the analysis of the data from this study.

After assessing the evidence for and against a grounded approach to data analysis, I could only conclude that the most problematic element was "meaning" which "is like a bubble floating before our eyes, we see it plainly enough but as soon as we try to grasp it the bubble bursts" (Dey 1999, p. 23). Dey suggests that the understanding of human behaviour cannot be divorced from the "meanings that inform interaction" (p.26). This was particularly important to my inquiry because the meanings of actions which arose from classroom interactions would be the focus of my inquiry. My thesis would focus on meanings as they developed and changed in different circumstances. So for example if a teacher uttered praise in the form of a simple statement 'Good, well done!', he or she might be seizing the opportunity to compliment a child after an initial erroneous response, they might have been complementary in the accepted sense or simply acknowledging that part of the response was accurate in order to illicit responses from others in the class.

However there were also instances when some of the emergent categories resonated with ideas that were encountered when reviewing the literature, such as 'inclusive we'. This was closely linked to Edwards and Mercer's, (1987) notion of "plural we" (p. 138). In a strict Grounded Theory approach, ideas from the literature should not be allowed to influence the development of codes and categories. However, it seemed inappropriate to 'suppress'

codes just because they bore a similarity to ideas already established in the field. This is where 'Grounded Theory' falls down as a technique - its ideals are laudable, but its implementation is difficult. In practice, Guided Theory analyses are always informed, albeit subconsciously, by the experience, knowledge and ideas of the researcher. This is the primary limitation of Grounded Theory as a technique.

However, the spirit of Grounded Theory was closer to the inductive approach I was seeking than any other analytic technique. Consequently the decision was made to adopt a 'grounded approach' and offer an 'honest' account of how the ideas developed. In some instances codes were clearly informed by the existing scaffolding literature. However, many more codes emerged that were unique to my own analysis. The approach taken was therefore 'grounded' with a small 'g', a useable hybrid approach, inductive in spirit but nevertheless 'informed' by theory, where the degree of resonance between it and what was being noted was too strong to ignore.

### **Aims of Thesis**

The aims of this thesis were:

- a) To identify scaffolding strategies within a SpLD context and to establish whether the 'scaffolding' metaphor should be redefined for this context.

'Scaffolding' by definition, is a support framework for a building during construction. In the context of this research the 'building' is a child's understanding of a problem to be solved and the nature of that support is likely to be qualitatively different depending on the ease with which the

edifice under construction (the child's understanding) can be completed. Atypical children, for various reasons, do not learn or cannot understand concepts with the same ease as mainstream children. One could therefore conclude that scaffolding in SpLD classrooms needs to be different. Of course, the ideal metaphor needs to be more than a mere 'tag'. It should allow the researcher to be interpretive and to generate novel perspectives. It should not be prescriptive in the sense that findings need to fit existing theories but that new theories would emerge from the raw data. As such, one could argue that a definition of 'scaffolding' might be best explored by using an inductive approach such as grounded theory to data analysis.

The notion of scaffolding conjures up the idea that children are given support/assistance to enable them to complete a task which is outside their reach if left to their own devices. It implies a form of teaching 'prop' which can easily be dismantled. However, if one considers the problems associated with ADHD and dyslexia, learning support needs to be sensitively put in place and withdrawn as the child gathers confidence. It is the strategies used by teachers to erect and dissemble support during episodes of contingent interaction in SpLD classrooms that will be the focus of this research. The metaphor was originally described by Wood (1976) as assistance provided by an adult to enable a child to achieve goals which were previously unattainable. This notion provides a useful link with Vygotsky's notion of the Zone of Proximal Development. This describes how a teacher, as the 'more able other', whilst being aware of just how much support to give i.e. working within the child's range, enables the child to achieve his or her goal.

But 'scaffolding' was not merely about completion of tasks. Wood stressed that successful scaffolding afforded the child a better understanding of the problem as opposed to merely being helped to complete a specific task. Therefore it is as much about how the knowledge, understanding and problem solving processes become internalized as well as ensuring that a specific outcome is achieved.

One could argue that before a level of understanding is achieved the child needs to be actively engaged and the teacher needs to recruit the child's interest (Wood 1976). So how do teachers do this? The teacher in a SpLD unit might find this difficult because it is the very nature of the learning difficulty which impedes learning. For example a child might suffer from ADHD and the teacher might need to adopt specific strategies to capture his or her attention. One might conclude that if she succeeds then she will have assisted the child's performance and sensitively begun to hand over the responsibility for completing the task to the child. But it is important to observe how this is done. I believe that if research can throw light on how teachers 'access' children with learning difficulties and achieve intersubjectivity, then young trainee teachers wishing to work in this area would benefit from this knowledge. Successful scaffolding strategies might also be incorporated into lessons plans and programmes of work.

b) To examine the possible differences in 'Scaffolding' observed during Mathematics and Guided Writing lessons.

This aim is closely linked to the previous one. It will be argued that because these core curricular subjects are qualitatively different then the nature of the scaffolding will also vary. Mathematics is a conceptual and prescriptive subject and although there are multiple ways of working out the 'right' answer there is little scope for subjectivity and there is one correct answer e.g.  $8+6=14$ . In contrast, Creative Writing allows children to be subjective, to write about their own experiences or fantasies. In other words children in Guided Writing lessons are unlikely to achieve a common end i.e. produce the same 'answer'. One might suggest therefore that, although Mathematics and English teachers follow similar stages in the scaffolding process, i.e. recruitment of interest and intersubjectivity, the nature of the scaffolding might reflect the differences in these curricular areas. To date there is little research evidence in this area.

### **Setting**

The research study was carried out in a London school for children with SpLD and where the researcher had taught for five years. It is a day school for girls and boys aged between 6 and 12. It provides facilities for pupils with Specific Learning Difficulties. These difficulties include problems with written language, reading, fine and gross motor skills (dyspraxia) and coordination. A naturalistic observational approach was adopted. In this way I would be observing the strategies of participating teachers who had not been instructed to teach in any specific way and would not be testing the efficacy of any strategies suggested by a researcher. The only intrusive element would be the fact that the teacher knew that the lesson was being

recorded by a video recorder in the classroom. Thirteen lessons were observed in total, five Guided Writing lessons and eight Mathematics lessons. A fewer number of Guided Writing lessons were observed because they tended to last 45 minutes whereas the Mathematics lessons were 30 minutes long. Class sizes ranged from 5 to 12 in number and pupil ages ranged from 6 to 12 years. All pupils were considered to have Specific Learning Difficulties ranging from poor retentive skills and ADHD to poor receptive and expressive language disorders. The participants were teachers experienced and qualified to teach SpLD children. Permission to carry out the pilot study was obtained from the head teacher and parents.

### **Ethical Issues**

Ethical issues were addressed in the context of the thesis with respect to the British Psychological Society (BPS) ethical guidelines (Appendix A). The researcher is a member of the BPS and therefore bound to adhere to these guidelines. In accordance with Point 3 of the guidelines, consent was obtained from participant teachers, head teacher and parents. In accordance with Point 4 care was taken to protect the identity of the school, children and participating teachers. The letters of consent from parents concerning the use of video cameras were retained by the school because it is the school policy to do this in order to assure that all participants remain anonymous. In accordance with Point 5, although I could not divulge the exact nature of the research to my colleagues as this would have affected the outcome, I did consult with my tutor to ensure that I was behaving appropriately. General details of the research were outlined to participant teachers. They were told

that I was interested in establishing what occurred in Mathematics and Guided Writing lessons. They were told not to do anything that they would not normally do because I was merely interested in naturally occurring lessons. It was explained that knowledge of the exact nature of the research project would be explained during debriefing. They understood the concept of a grounded approach and that knowledge of the exact nature of the research this might impact on lesson presentation. Participants were assured that data emerging from the research would be treated confidentially and that they would not be identifiable if the thesis was published. They were also assured that they could withdraw from the project at any time if they wished to do so. Full details of the study were provided during their debriefing and all questions were answered.

During their debriefing the children were thanked and told that the lessons had gone really well and that I was impressed by how interesting the video footage had been. I explained that the videos would help me in my research to discover the best ways of helping other dyslexic children. The teachers were thanked, assured of anonymity and told that the emergent data had revealed very interesting theories which would be very useful, if included in teacher training courses for those interested in specific learning difficulties.

### **Data Collection**

I began this research without preconceived hypotheses but with a keen interest to establish how teachers scaffold the learning of children with Specific Learning Difficulties. If one is studying the behaviour of people, it

would seem obvious to observe what they do and to analyse and render meaningful what one observes. I needed to closely examine what teachers say. I had decided not to interview the teachers or children before observations took place because I felt that I needed them to be totally naïve and that as such I would eliminate possible bias. When people's actions are filmed in the absence of researchers the camera itself might still be an intrusive element because it is not a naturally occurring part of day to day lessons and children could be distracted by the presence of the camera.

There is also the point that a teacher who knows that he or she is being observed is unlikely to be 'natural'. The chances are that the teacher will want to impress by planning a 'good' lesson even if the exact nature of the research is not divulged. There is also the intrusive element of the researcher who becomes a participant or remains in the classroom during observations in order to make notes. The least obtrusive approach would seem to be positioning a video recorder in the classroom depending on whether the researcher is interested in teacher, children or both. I had decided to opt for an observational approach. Initially and after gaining permission I filmed a Guided Writing lesson as an initial trial of data collection. I also made notes as I replayed the recordings. I learned from the pilot study that children were curious about my presence, even though I had made a point of being there during other lessons.

The teacher during a later discussion, voiced her concern that even under normal situations ADHD children found it difficult to attend. I therefore



concluded that I should decide on an optimum position for the video camera in the classroom but not be present. I decided that I needed to observe the teacher, not forgetting that the teacher would move around whilst introducing lessons. I therefore decided to place the camera at the back of the classroom and facing the board because when teachers introduce new topics they tend to write on the board and boards in classrooms tend to be positioned in the front of the class. I had no preconceived ideas at this stage whether I would transcribe lessons as a whole or in part.

I watched the first Guided Writing film several times and decided that I would transcribe it in full. In this way I was able to 'freeze' the interactions so that they could be read and re-read. I made pencil notes on the transcript as I read each line (App.17, 18 ).This later proved a useful method because I frequently changed my mind about how I described the emergent codes. I made notes in pencil so that I could erase my notes in favour of new codes. However I later wrote on yellow notes which could be moved around and stacked together. In this way every detail regarding each code was retained.

I initially examined my first transcript at word level. I underlined the significant words in green ink. I did this because these words, for me, were meaningful at this stage but I did not know why. I then numbered the lines because I thought that I would need to refer to these at a later stage. I then felt that I needed to establish a rationale for analysis. I was doing this research in order to establish what strategies teachers in SpLD environments use to support their pupils. From this point onwards I decided to constantly

question, 'Why is the teacher saying this in this way?' My first impression was that there was considerable praise implicit in the teacher's words. I then decided to underline these words in green so that I could focus on the teacher's intentions which these words implied. However I soon realised that the teacher was sometimes doing more than one thing. She could be praising a child (1.7,8,9) whilst in the same sentence, reminding others because they may have forgotten what they had done in a previous lesson. At this stage I thought that I could have a code for 'Empathy'. However as other observations were coded at this level, I felt that too many initial codes were emerging but I continued to process the transcripts in this way until it was possible for me to main subcategories. My first notes (App.17 ) were very detailed, consequently, analysis of the data was very time consuming as an abundance of sub-ordinate codes emerged.

I then attempted to reduce the number of codes e.g. codes such as 'including everybody' and 'creating inclusive feeling' (App. 18). These became part of 'Inclusive We' - a subcategory of 'Mutual Construction of Knowledge'. Similarly, 'more praise', and 'a form of compliment' became components of 'Dealing Sympathetically with Erroneous Responses' - a sub theme of 'Negotiating Failure'.

I then decided to transcribe a Mathematics lesson, writing my thoughts in note form against each line. At this point I was beginning to feel that it was necessary to focus on an interval in both Mathematics and Guided Writing lessons that was common to both subjects.

I concluded that I would need to focus on how teachers introduce new topics in Mathematics and Guided Writing. I elected to observe introductory lessons in Mathematics and Guided Writing because I needed to narrow the research focus in order to establish the types of scaffolding strategies used. I was also interested in how teachers introduced new topics to the children because it would typically contain much teacher talk when introducing new concepts within new topics. This data would address my research questions.

I liaised closely with the participating teachers and arranged that I would leave a video camera in the classrooms at frequent intervals before beginning observations. This would help the children to become acquainted with its presence. I decided to gather data from two Guided Writing lessons and two Mathematics lessons in order to begin my data analysis. I then proceeded to carry out further observations in both curricular areas, the decisions of which lessons to tape next being driven by the ongoing analysis. I made rough notes as I watched the recordings. I started carrying a note pad around with me in order to record thoughts as they occurred during other times at school. These tended to become modified as I progressed through the recordings. In this way ideas for future analysis began to evolve from the raw data. I then began to return to the original observations with new foci in mind.

### Data Collection Schedule

Date of Observation	Lessons	Teacher Reference Number
September 2000	Mathematics	1
	Guided Writing	1
	Mathematics	2
	Guided Writing	1
October 2000	Mathematics	2
	Guided Writing	2
November 2000	Mathematics	4
	Mathematics	5
January 2001	Mathematics	3
	Guided Writing	6
February 2001	Mathematics	7
	Mathematics	8
	Guided Writing	9

### Data Analysis

Analysis of data from a pilot study revealed frequencies of certain teacher strategies, however this form of analysis did not capture the richness of interactions. I felt that by quantifying the types of interactions I would be viewing subsequent observations with preconceived notions of what was to

come. I knew that patterns would arise but I felt that I needed to look closely at the meaning and intention implicit in these strategies. By this I mean that a teacher might say the same words but in different situations. For example a teacher might say, "Could you repeat that please?". The teacher may have misheard a child's utterance but he or she might also be ensuring that a less able child in the class was given an opportunity to grasp information, particularly if the latter was fearful of exposure. Furthermore the teacher may have felt that giving a child a 'platform' was a positive means of enhancing self esteem. Analysis of data in this way resonates with the tenet of a grounded approach. I also felt that it would reap a more meaningful definition of scaffolding within a SpLD environment.

A pilot study in which I observed a teacher in a Guided Writing lesson with Year 3 children highlighted the labour intensive nature of transcribing. Pidgeon and Henwood, (2000) suggest that the problem can be addressed by limiting transcription to utterances which are relevant to and those which enhance the researcher's analysis. However full transcriptions were done because my ideas emerged out of the data and emergent theories formed the basis of what I would seek in subsequent observations. (Appendices 1 - 13 incl.) The schedule for collecting the research data is shown on page 102,

The analysis of the data was validated through open-ended questionnaires (App.14) completed by four of the participating teachers. Robson, (1993) argued that the use of triangulation was likely to give a richer account because it involved using more than one source of information in order to

address the research questions. Triangulation through the use of questionnaires was therefore seen as a possible way of strengthening emergent theory. Care was taken to structure the questions in such a way that they would not, as colleagues, be tempted to respond in a way that would please the researcher. However there was also the chance that they would make value judgements about events which occurred in their lessons.

Copies of the transcripts accompanied the questionnaires and participants were asked to comment on highlighted sections. (App.15, 16, 17) They were also asked to comment on what strategies they identified and the intentions implicit in these strategies. Lastly they were asked to comment on whether they felt there might be differences in their approaches between teaching Guided Writing and Mathematics. The triangulation of data through the use of questionnaires was useful and revealing and provided validity to the research findings. Triangulation involves using more than one source of information in order to address a question, so that greater validity is achieved. However although three participants responded the fourth could not be contacted. I also chatted informally in the staff room with my colleagues during debriefing about their responses. I then returned to the transcripts to see whether their comments supported the ideas which had emerged from the data. In many ways participating teachers' comments resonated with patterns of scaffolding which emerged from the data such as: the importance of establishing parameters for behaviour to ensure that groups remained focussed, recaps, the use of tools and constructing knowledge together. The participating teachers' responses on the

questionnaires revealed that in many instances they behaved intuitively for example:" Much would depend on the child's/children's specific difficulty" (App.17) and " I think the children might have been encouraged to respond themselves as my response to AH was quite supportive". (App.16).

Responses from the questionnaires are referred to in the analysis chapters as appropriate.

The transcript conventions used in this thesis are:

..... Some of the extract was omitted at that point

**bold print** Emphatic speech

\*\*\*\*\* Unclear speech

ch Unidentifiable child.

The children were denoted by fictitious initials and participating teachers were given reference numbers.

## **Summary**

This chapter has reviewed research methods used to study the nature of the scaffolding of children's learning in varied contexts. It concludes that earlier studies involving observations of mother-child interactions cannot realistically be equated with that of teachers and children in small group classroom situations. Furthermore many research studies involved the use of prescribed metascripts which did not connote with the notion of observing teacher- child interactions in naturalistic situations. If one is to discover how teachers in SpLD classrooms scaffold the learning of pupils, observational methods need to be unobtrusive and as natural as possible. This means that

the researcher does not become an active participant and that the teacher is unaware of the researcher's motives. Of course a video camera is obtrusive but efforts would be made to position this at the back of classrooms to minimise its presence.

The writer concludes that a grounded approach to analysis of raw data would allow a researcher to analyse, theorise and carry out further observations based on the emergent theories. Scaffolding patterns would in this way emerge from observations and theories. Resultant scaffolding strategies could then be analysed and categorised in terms of what the teacher was doing and why the strategy was appropriate or not in that context. Four of the participating teachers were asked to complete questionnaires in order to validate the research findings. Questionnaires were completed by three participants. The chapter concluded with a data collection schedule. In the following chapter the background to the development of the 'theory' and emergent categories are discussed.



### **Chapter 3: Background to the Development of the 'Theory'**

#### **and the Emergence of Categories**

Wood, Bruner and Ross, (1976) argued that when teachers 'scaffold' the learning of children they enable the child to "...solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts" (p.90).

For these authors, educators control:

"...those elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence" (p.90).

Wood et al stress that the learning process did not solely involve task completion, rather, the child should understand the nature and purpose of the task in hand. In other words the "...comprehension of the solution must precede production" (p.90). The aim of this research was to observe, record and analyse the way in which teachers scaffold the learning of atypical children in Guided Writing and Mathematics and to establish whether there are differences in the modes of scaffolding used with children in these subjects.

I have worked as a teacher with children with Specific Learning Difficulties for fifteen years. During the year before my doctoral studies began I completed a Master's programme during which I studied the dialogic interactions between teachers and pupils with specific learning difficulties. In the main I had analysed my observations through field notes and

quantitative analysis but I felt that raw data had more to offer than just noting the frequency of different modes of teacher strategies. I became intrigued by the different ways that the teachers supported children with SpLD in different curricular areas. Furthermore I became interested in the meaning and purpose implicit in what teachers said. Although each curricular area had specific curricular targets to be met I noticed that in some subjects the teachers and children were more 'relaxed' and interactive. These areas included Drama, Music, Art, and Speaking and Listening within Guided Writing. This is not to say that children's achievements were considered less important in these areas rather, the differences lay in the way the teachers presented novel topics. Most of these lessons would begin in a friendly manner, there was very little writing on the board so children did not feel that they needed to learn specific terminology. Of course there were instances when pupils became boisterous and situations became very relaxed. But the teacher would have specific ways of dealing with these 'disruptions'. I noticed that this was an important aspect of pedagogy in an environment where many children had poor retentive skills and Attention Deficit Hyperactivity Disorder.

I was also noticing that whilst teachers had definite lesson plans outlining targets to be met, there were no explicit plans outlining how they would cope with unexpected events such as bad behaviour, dealing with erroneous responses or how to praise after good work. This led me to question whether these aspects were part of the teacher's 'hidden agenda'.

My analytical journey began with close discussions with colleagues in the staff room. I would need their support and permission to observe their lessons. I began by informally observing Drama lessons. I noticed particularly that children who were timid and unforthcoming in other curricular areas often excelled. When questioned why they enjoyed Drama I was told that " ...there's no homework ....I don't need to read.....I don't get my spellings wrong.....there's no handwriting to practise". Children who were not at ease in Drama lessons said that "....I can't do it .....people laugh at me....". There were similar comments made during an Art lesson. It would seem that natural ability aside, for these topics, self perception played an important role in children's cognitive development. I then began to question the importance of self esteem in the learning of atypical children. By this I mean that what teachers and peers say to children affects how they perceive their ability to achieve. I then decided to observe English lessons.

At that time it was only possible for me to observe 'Guided Writing' lessons because these were time tabled in the afternoon on a particular day when I had a free period. These lessons tended to be in two parts. During the first sessions of Speaking and Listening a teacher would introduce the subject and encourage pupils to think about the different ways in which they could write their own accounts. On the whole, children enjoyed these sessions. I noticed that they were not hampered by poor reading and spelling skills but they were invited to speak freely and to make anecdotal contributions.

Contributions were assessed by the teacher when she would suggest additions or different ways of presenting verbal responses. If a child with

severe expressive language problems became 'tongue tied' the teacher would become the child's voice by verbalising what she knew the child was attempting to say. Without exception the teacher would praise the child as if he had actually said the words. On occasions children were seen to use inappropriate language whereupon a teacher would reformulate the child's phrasing but allow the child to retain authorship.

At this point I questioned whether the teacher was being kind or just creating an opportunity to praise the child for introducing the idea in the first instance. The notion of pupil self esteem continued to emerge as an important factor in the equation. I began to question whether learning occurs at all if children had no feeling of self worth. There were occasions when children were allowed to speak freely. If this was relevant it was followed by praise but this was frequently followed by pleas from peers to do the same. I began to notice that what the children said was very rarely 'wrong' rather, the child would be supported and 'guided back' on to relevant 'ground' without loss of self esteem. Of course there were occasions when a child was reprimanded for making a silly remark but this appeared to be part of the teacher's strategies. If she allowed this to continue others would lose concentration and forget task objectives. One could argue that this is an important teaching strategy for teachers teaching children with ADHD and poor recall.

I wondered whether implicit in the teachers' pedagogy was the ability to adjust levels of support according to children's need. I saw that teachers did

not 'teach' one child without instinctively being aware of how their actions might impact on others. Of course this would be particularly true in SpLD classrooms where children frequently have low self esteem. Teachers are aware that this might be a consequence of underachievement in the past and the development of negative cognitive patterns about their abilities. Over time I realised that before learning takes place children need to feel that it will indeed be possible for them to succeed. I then began to question how teachers prepared for and created a learning environment which fostered the beliefs in children that they would achieve with a teacher's support and assistance.

At this juncture I felt that I wanted to observe other teachers during Speaking and Listening sessions. I observed further Guided Writing lessons. I tried to be present in different year groups to see whether there was a difference in teacher behaviour which I could relate to the age of children. I made notes on yellow notes so that I could physically categorise strategies by moving them around. Teachers were observed reacting differently to inappropriate responses from children. In some instances they were ignored but at other times responses were purposefully linked to what the teacher was teaching at that time. I felt that in the first instance the teacher was controlling behaviour in order to maintain concentration but in the second instance the child was praised for that contribution even though it was not appropriate in the first instance. Once more I questioned the purpose of the teacher's actions. I concluded that on the whole teachers responded contingently depending on a child's action or verbal response. I was impressed by

children's resultant motivation and ease in these lessons. This could be explained by the fact that during Speaking and Listening sessions children with SpLD were not asked to read or write, they were just asked to make verbal contributions. However, for some children this was difficult but it was interesting to note how teachers scaffolded children with expressive language difficulties.

At this point I decided that I wanted to observe children in other areas of the curriculum. I obtained verbal permission to carry out my research from colleagues and my head teacher. Parents were asked to complete written forms agreeing to their child's participation. These were retained by the school to protect the children's identities. While discussing my research briefly with colleagues in the staff room, most argued that on the whole children enjoyed Speaking and Listening in Guided Writing but that it was more difficult to introduce new topics in Mathematics or Science than in Guided Writing. They felt that there was pressure to get facts across in Mathematics and Science because children were expected to learn facts and accurate terminology. Of course it is useful to relate Mathematical and Scientific topics to real life situations in order to facilitate understanding but ultimately, there are definitive facts to learn and it is the teacher who is initially in possession of such facts.

At this juncture I decided that I should observe Mathematics lessons. I could not observe Science lessons because it would be difficult within the constraints of year group timetables. I was curious to see whether teachers

dealt with problems such as erroneous responses in different ways in these core subjects. I was also keen to establish whether teachers' strategies differed when addressing similar aims in the different subjects for example when recapping information discussed during a previous lesson. I intended to follow the same procedure during these observations as I had done in Guided Writing lessons but because of the unforeseen absence of another teacher I was unable to be present during the observation. I therefore had to rely on what the camera told me because I was unable to be there. I transcribed the recording and analysed everything the teacher had said at sentence level. I then asked myself what was implicit in the teacher's words, rather, why was the teacher saying this. I then needed to look at what the child had said or rather what the teacher was responding to. Subsequently, a discussion with the participating teacher revealed that she had been acutely aware of my presence in a Mathematics lesson and the effect it had on the children. She suggested that one child in particular behaved precociously in my presence. It was at this point that I decided that because many children were easily distracted I would not be present but begin to leave the camera in the classroom in an optimum position and focusing on the teacher.

Further analysis of the raw data revealed that teachers sometimes ignored children's remarks, but why? There were times when a teacher would re-voice a child's response and depending on the timbre of the voice she could be endorsing the child's views or indicating that the child should think again. In the last instance a teacher would tend to be monotonic indicating that the retort was questionable. By this time I had amassed piles of yellow notes on

which I had written the line numbers, the phrases and what was implicit in their comments. I then delved deeper and analysed at word level. I soon realised that individual words were only meaningful within specific contexts. By this I mean that a child could be asked to sit down because he or she had explained a point well or if they had been disruptive. After observing three lessons, patterns began to emerge. For example, in two Guided Writing lessons, the teacher had brought to school some toys and a dead fish. The children were expected to write a story about their favourite toys and in another lesson to give descriptive accounts of the fish. In both instances the same teacher created a cosy atmosphere with children seated in the front of the class, in a circle or on the floor. She did not use the white board at this initial stage. I then felt that I wanted to observe the same teacher in Mathematics in order to see whether she adopted similar approaches. Although she spoke gently she was very soon introducing Mathematical terminology which the children needed to learn. She did invite the children to relate what 'symmetry' meant to them and she reminded them of something they had done in a previous lesson.

Differences began to emerge between teachers' strategies in Guided Writing and Mathematics but I kept returning to the notion that in Mathematics although the children were questioned, they were ultimately guided towards the answer which the teacher already knew. At this stage I had observed one teacher in the different subjects. I felt that it would be interesting to observe other teachers in this way in order to establish whether individual differences existed between teachers in the strategies used. I encountered difficulties



with time tabling but it was possible to observe one other teacher in both Guided Writing and Mathematics. I played the recordings of these lessons at least twice and started line-by-line coding. Categories of teacher strategies emerged out of the raw data. This induced me to observe further lessons.

I observed thirteen lessons in total. The intervals between observations depended on how easily categories became apparent and the nature of the theory which emerged from the data. The times at which my observations took place needed to be discussed with the teachers concerned because in order to record linguistic interactions I needed to observe the Speaking and Listening sessions in both Mathematics and Guided Writing. This meant that some data was not transcribed until for example I needed to compare the strategies of a particular teacher in both areas of the curriculum. I had concluded that after the initial analysis of transcriptions it would be advantageous to obtain data from Mathematics and Guided Writing lessons but where teachers were doing the same thing, i.e. introducing a new topic. I needed a common theme in order to search for differences between teacher strategies in the different curricular areas. After each observation I transcribed the data and coded further categories. Each of these were sorted into similar 'reason for saying' themes. By this I mean that for example, if a teacher helped a child with expressive language difficulty by verbalising part of the answer or used concrete aids to help a child who was unsure then the teacher was "negotiating failure".

As I read the transcripts themes began to emerge. I kept asking myself "Why did she (the teacher) say that?" or " Why did she phrase that in that way?". I had however noticed that in many instances the teachers' motives were driven by the need to achieve receptivity to learning in the children and that frequently this meant maintaining the pupils' self esteem and creating an effective learning environment. It was at this juncture I realised that the categories that had developed over time could be united under the single theme of 'Creating an Effective Learning Environment'. This was what scaffolding in SpLD was all about, not the construction of understanding, but the creation of an environment that was conducive to constructing understanding. It was another step removed from scaffolding as it had been defined in mainstream contexts, where situational influences on and supports for learning were assumed to have less of a direct impact on the children's ability to acquire new knowledge. Although this remained the core category it became apparent that implicit in this was the teachers' efforts to maintain children's self esteem.

**Core Category: Creating an Effective Learning Environment and Emergent Main Categories.**

According to Vygotsky's (1978) sociocultural theory, social environment and language play a critical role in cognitive development (Rogoff, 1993; Wertsch, del Rio and Alvarez, 1995). The initial aim of this research was to examine the verbal interactions between teachers and children and to establish whether there were differences in patterns of teaching strategies in Mathematics and Guided Writing. Although three main themes emerged it

became apparent that throughout each observation a common thread became evident. It was noted that implicit in the pedagogy was a supportive framework within which teacher and pupil interacted. Discussions with participating teachers in the staff room after observations revealed that this was not a planned strategy rather "... it's what you do, isn't it...well you just do it...they've got to have the feel good factor...you've got to get them in the right mood or the children lose concentration..." . One could argue that most teachers would respond in this way but it would be difficult to monitor the mood of individual pupils in large classes within mainstream education.

The first emergent main theme was 'Mutual Construction of Knowledge'. Teachers were observed to foster feelings of working collaboratively. The 'inclusive we' was frequently used enabling less able pupils to accrue knowledge without having to ask the teacher. The second theme encapsulated how teachers played an important role in 'Negotiating Failure'. They dealt sympathetically with erroneous responses, frequently cueing children when questioned. In this way children were learning without needing to ask questions which might have been inappropriate and which would expose their lack of knowledge to peers. The last theme was 'Teacher as Mediator'. Here teachers were seen to facilitate learning by presenting material in more palatable forms, for example by modelling appropriate language or by reconstructions.

Some interesting points emerged from the analysis of raw data. The most significant was the fact that although there were examples of strategies

which exemplified the three main categories in Mathematics and Guided Writing there were notable qualitative differences between the strategies in Guided Writing and Mathematics depending on what the teachers were targeting. It became apparent that because the nature of Mathematical knowledge is prescriptive and children need to learn and remember accurate terminology, very little lay knowledge could be elicited from the children when new topics were introduced. However in Guided Writing although the format for writing descriptive accounts was taught, teachers tended to elicit idiosyncratic and anecdotal descriptions of events from children. This resulted in many versions emerging. In Mathematics there tends to be one accurate account/answer. These differences are discussed in the following three chapters which offer details of three main components of 'constructing an effective environment' that were identified in SpLD classrooms.

## **Chapter 4: Data Analysis -1<sup>st</sup> Category : Mutual**

### **Construction of Knowledge**

"The essence of human knowledge and understanding is that it is shared (Mercer, 1995 p.66).

Mercer, in line with Vygotsky, (1978), suggests that knowledge is socially constructed. Whether we as teachers are helping a child to write a story or to solve a Mathematical problem, we do this through language or other communicational means. Paechter, (1998) asserts that because teachers decide the precise nature of knowledge to be learnt and which aspects of information are important or relevant, they play a dominant role in the construction of knowledge and a child's cognitive development. Teachers have a prescriptive curriculum to impart and they know what skills children need to master in order to meet the demands of the curriculum. Talk is an important part of a teacher's repertoire but teachers are frequently unaware of its significance (Wells, 1996). Wells cautions that unless educators are consciously aware of the importance of classroom discourse and that it is an important tool in the learning process, then key opportunities are likely to be missed which might otherwise enhance a child's cognitive development.

In this chapter extracts from lessons will illustrate how teachers 'set the scene' and create socially rich and motivational learning environments for children with SpLD. Teachers showed sensitivity and ensured that the children's contributions were valued or given 'honoured voice' (Oldfather, 1993) in front of peers. Skinner and Belmont, (1993) argue that children are

more likely to respond if the teacher creates an environment where they feel they can express ideas freely without loss of self esteem and to treat their peers with self respect. This research is relevant to this thesis because it partly focuses on how teachers supported children in Guided Writing.

Bruning and Horne, (2000) assert that:

"Students need to be motivated to enter, persist and succeed in this ill-defined problem space we call writing" (p.27).

In this chapter it will be shown how the teachers of children with SpLD scaffolded children's learning so that they accrued knowledge and equally important, how they tried to avoid conditions which might make learning a negative experience. These strategies are referred to here as components of a theme entitled 'mutual construction of knowledge'.

### **Providing a Child with a Platform**

Initially this subcategory was linked to 'questioning', as emergent data revealed instances in which teachers were purposefully encouraging a shy child to speak through questioning. Although linked to Oldfather's, (1993) notion of 'honoured voice', the researcher felt that 'Providing a child with a platform' was a more suitable description of a teacher's intention because it connoted with a teacher providing 'an audience', the child would speak from an elevated position and be heard by peers. In this sense they were constructing knowledge together and teachers were encouraging pupils to plan and discuss their ideas orally whilst creating opportunities to construct knowledge together.

This normally occurred during 'Speaking and Listening' at the onset of a new writing task. A supportive teacher would normally create a safe environment for oral expression referred to here as the provision of a 'platform' from which to speak. In the following extract from a Guided Writing lesson T.1 had asked the child HM to imagine what her toys might be doing at night when everyone was asleep:

T: .....HM is sitting there with her hand up so I'm going to ask her first, HM.

HM: Do you know what my teddy does sometimes? I follow him, do you know what I do?

T: You follow him.

HM: Do you know what they get up? they turn on the TV and make popcorn and watch a movie.

T: Amazing, that's a fun thing to do, stands on the TV and makes popcorn. Aha, well DM

DM: My lizard does have some fun time at night time.

(Guided Writing Observation 3, p 3)

HM had expressive language difficulties but because the teacher had created a 'safe' platform the child felt secure and confident. The teacher validated HM's account by responding to her question and by repeating the child's words: "You follow him". HM responded and continued with her story. The teacher's involvement and interest was an indication to the child that her contribution was valid and valued.

This notion supports the views of Skinner and Belmont, (1993) who purport that if children perceive teachers as warm and interested they are likely to engage more readily in tasks particularly if children find oral expression problematic. In another Guided Writing lesson, a child, TO, is telling his peers about a fishing holiday:

TO: On my holiday my nanny went fishing and.....

T: Did she keep the fish?

TO: She put it back in the sea.

T: Well this is called a mackerel and it came out of the sea and you can eat it. TP what did you want to say?

TP: (Shakes his head)

(Guided Writing Observation 1, p. 4)

T.1 had brought a fresh mackerel to school. She encouraged the children to touch and smell the fish and later to describe the texture and colours of the skin. TO was invited to speak but because the teacher feared that his contribution may become irrelevant she intervened. However she took care not to devalue his statement; rather, she asked TO what happened to the fish. His reply was then linked back to the teacher's original theme. Oldfather and Dahl (1994) suggested that children's motivation to write stories is linked to a child's flair for verbal expression. This suggests that during Speaking and Listening children should be encouraged to make oral contributions.

There were fewer instances of teachers giving children opportunities to give accounts of idiosyncratic events in Mathematics. One might suggest that this is because in Mathematics children need to learn Mathematical concepts and



terminology and this might provide little scope for children to relate their own experiences. Children may also fear that they might give wrong answers therefore teachers are likely to avoid situations that could make learning a negative experience. However in the following extract from a Mathematics lesson T.2 allows the child PR to relate a humorous saying:

T: It's fourteen nights absolutely, and we don't need to look it up in the dictionary, good. So it would be four (circles the 4 in 14 on the board) it's the beginning of fourteen nights.

PR: I have a strange sort of thing about a fortnight.

T: Yes what's that?

PR: If it takes a week to walk a fortnight how many apples in a barrel of bricks?

T: And again (laughing) just see if you can work this one out. Where did you come up with that?

PR: My dad told me.

T: So what do you think that saying might be playing with? So just hear him saying it again

PR: If it takes a week to walk a fortnight how many apples in a barrel of bricks?

T: Does that make sense? It makes you laugh doesn't it? What tradition is it playing with? Is it poking fun at certain Mathematical questions? What sort of questions does it remind you of?

SO: A problem question.

T: Yes but can you answer that problem question ?

SO: No.

T: No and why not? they've given you the wrong information haven't they? I'll thank you for that. Now there's something else that there's seven of that we talked about in our reading lesson today.

The teacher was discussing the importance of the number seven in daily life. Although PR's response was not relevant, she invited him to repeat the saying so that she could highlight the difference between factual and fictional information and the importance of accurate information in problem solving. Although this was an amusing and frivolous interlude, the teacher was not dismissive; she capitalised on the situation by relating it to Problem Solving. In this way the teacher made PR feel that he had made a valid contribution.

Later, during the same lesson, the teacher was encouraging another child, EM, to share with his peers ways that he had developed in order to facilitate the learning of tables:

EM: I know ways that if you have difficulty with the seven times table.

T: Oh yes.

EM: You can learn the other times tables then you can reverse it.

T: Oh yes, give me an example. If you know the 2 times table you can.

EM : You can do  $2 \times 7$  and  $7 \times 2$ .

T: (nods and smiles)

CL: And you can do  $3 \times 2$  and  $2 \times 3$ .

T : So hands up who thinks that the 7x table is quite hard to learn ( some hands go up). OK, but once you've learnt it it's a real help so that's your aim this week. You'll see that

in your sheets here it's all to do with 7s. But use EM's tricks if you're not sure what  $7 \times 5$  is (showing papers)  
(Mathematics Observation 8, p.6)

T. 2 allowed EM to describe his method of learning tables to other members in the class. She praised him and this prompted a similar retort from a peer CL. The teacher concluded the lesson by suggesting that EM's hints may be helpful when tackling new tasks.

When teachers allow children to relate personal experiences to their peers it signifies the teacher's endorsement and children feel that their contribution is valued, thus enhancing self esteem.

Children were given 'honoured voice' in both subject areas. However, in Mathematics, children were encouraged to relate directly to Mathematical terminology whereas in Guided Writing oral contributions tended to be idiosyncratic or fictitious and based on personal experiences. But in both instances it emerged that the social and cognitive aspects of learning were closely linked.

### **The 'Inclusive We'**

One might suggest that the most obvious way of supporting children is to create an environment in which children are attentive, interested, interactive and have confidence to question if unsure. But children with specific learning difficulties are by definition poor in these areas (Hornsby and Shear

1994). They are frequently apprehensive when introduced to new topics. It is therefore important that children feel that learning is a shared experience and that problems will be addressed and solved 'together'. If teachers are able to provide an inclusive learning environment within which they lead and elicit pupil participation, then arguably children could proceed together under the teacher's guidance. The subcategory 'inclusive we' evolved as a possible code from the analysis because teachers were seen to support pupils whilst projecting a feeling of inclusiveness through their use of 'we'. Although linked to the notion of 'royal we' and Edwards and Mercer's (1987, p. 138) notion of "plural we", 'inclusive we' connotes with the notion mutuality of and proceeding together whilst constructing knowledge.

An analysis of the transcripts revealed that teachers in both Mathematics and Guided Writing used the pronoun 'we' but there were subtle differences in its use in the two subject areas. In the following extract T.3 was introducing a new task in Guided Writing with a class of Year 5 children:

T: Watch how I spell it. Pro-ced-ur-al writing and that is when we follow a certain procedure. Now what do I mean when I say a certain procedure?

AH: When you've got a procedure it means you proceed in a certain way, order I think.

T: Yes procedural writing we follow a certain order, a good word to use. (Writes 'order' on the board).

(Guided Writing Observation 4, p.3)

T.3 was introducing new terminology and was explaining that when one wrote a recipe one was following a certain procedure. She knew that it was a

novel term but through the pronoun 'we' she provided the assurance that they would proceed together. She was aware that some children would experience difficulty, but the inclusive 'we' suggests to the children that the task would be possible for everybody. Because T.3 used the 'inclusive we' it was understood to be a shared activity, as opposed to a task that the children would do alone.

In a later questionnaire (App.16) T.3 indicated that she felt that because she had responded to AH's description in a positive manner, others might have been encouraged to respond. This also indicated that implicit in the teachers' pedagogy was the need to maintain pupil self esteem so that they would feel they could readily air their views. Subsequent informal discussions about this lesson with T.3 revealed that she felt: "It's just what you do isn't it?". This suggested that maintaining 'the feel good factor' in children was an important part of a teacher's approach and that teachers appeared to do this without thinking. Mathematics teachers were also observed introducing tasks in a similar way. In the following extract T.4 explained that they were looking at something new but assured the children that it was something "which we've done before".

T: Good, now today we're going to look at something new.  
We're going to look at adding which we've done before,  
adding (writes adding on the board) Adding, getting  
bigger, adding that's the sign there (points to plus sign on  
board). 'Plus' we call it sometimes. We are going to look at  
adding eleven (writes eleven on the board) to numbers just  
like we did yesterday, we did forty add ten is

Chorus: fifty.

T: Is fifty. We are going to do forty add eleven. We're going to practise a little bit for everybody. Some people will find it easy and some people will find it

ML: Some people will find it medium or hard.

T: That's right, so if it's hard what do we do, keep practising.

(Mathematics Observation 7, p. 4,5)

T.4 did not question, rather she explained the meaning of addition, thus providing a foundation which facilitated the understanding of subsequent work.

This is an important strategy when teaching children with poor retentive skills; the information is re-introduced and children do not feel the need to ask questions which might expose them to their peers. This notion of recapping will be discussed later. But this illustrates the dilemma encountered by the writer when trying to isolate categories, because in many instances teachers used several kinds of approaches simultaneously.

However, in most instances, whilst constructing knowledge together, teachers sought to maintain pupil self esteem. And so teachers used the pronoun 'we' to ensure that every child would feel that they could participate at their level of ability although the teacher also acknowledged the varying levels of expertise in the class. In this way teachers were conveying to individual learners that the extent of their knowledge and their ability was known to the teacher. Furthermore the child who commented that some

children will find it 'medium or hard' also understood that there was a range of ability in the class, which suggests that these children were aware of and accepting of individual differences in ability and the need to accommodate them.

The projected notion that 'this is what we do' is also reflected in the next extract taken from the same lesson with Year 2 children. The teacher had asked the child CA to add one to thirty:

T: Thirty now add one more, one more, you've added 10

\*\*\*one.

CA: Thirty, thirteen.

T: Can anybody help out?

Chorus: Thirty one.

T: Thirty one. That's why we use these cards so that you can look underneath if you can't remember whether it's thirty one or thirteen.

CA: Thirty one.

T: That's why we use these cards because they're very useful. We could do it with money as well. How much have we got here JY?(shows him a twenty pence coin).

JY: It's twenty.

T: It's twenty and we're going to add how much.

(Mathematics Observation 7, p.7,8)

The child CA was confused between 13 and 31. The teacher knew that he was prone to digit reversal. She reassured the class that it was perfectly acceptable to use aids such as cards if one was unsure. This was implicit in the statement "That's why we use these cards." She was reassuring the

children, indicating that the mistake was commonly made and therefore jointly owned by CA and his classmates. She was thus creating a safe and caring environment within which they were constructing knowledge together.

The same teacher, through the use of the pronoun 'we', involved others in the learning process during the same Mathematics lesson. This was another strategy used to engender the feeling that knowledge is mutually constructed:

T: That's it a star for you JY and a star for (places star on ML). All things we do to add ten and take away ten. Let's see if we can help ML to do one of these. Would you like to start with 20 or 30 or 40?

VC: 40

T: You want to start with 40, now let's put another number on just to help you go. Now we're going to do the same thing. Would you mind leaving something on my board (to ML) because people need this to remind them. We add 11 what are we going to add, we're going to add.

Chorus: 10.

(Mathematics Observation 7, p.8)

Once more the teacher had not only provided a supportive environment but projected the notion that work is not solely for the individual, but that it was a shared activity. The teacher's words contained the implicit message to ML that help was at hand consequently; VC proceeded with confidence.



However, there were occasions when 'doing tasks together' became problematic for a teacher. This was an occasion when the teacher knew that some children could complete a task unaided but that they would experience difficulty. T.7 needed to insist that it really would be a combined effort. Children in the following extract from a Guided Writing lesson would ultimately be asked to draw a life size shape of a character, Timothy Winters, from a poem by Charles Causley, together. The following extract illustrated the literal use of the pronoun 'we'. The child TI had begun to indicate that he would like to do the task on his own:

TI: When we've done it are we going to draw him on a piece of paper.

T: We're going to do a big one on a big piece of paper all together.

TI: But you know when we've done the big piece of paper.

T: No we're going to do it as a group so all your ideas will be equally valid and they will go on this piece of paper so that at the end of the day we will have five Timothy Winterses. So we all tend to agree on most things.

(Guided Writing Observation 5, p.8)

T.7 explained that they would draw the shape and add illustrative descriptions 'together'. This was a useful strategy in a mixed ability classroom. The teacher was fully aware that the most able child, TI, could and would want to produce his own diagram and complete the task with little help. But the teacher felt that it was important for the class to attempt the task together and so insisted that that was what they would do. There were weaker children in the group who would need considerable assistance and

would be 'exposed' if left to complete the task alone, but who would gain knowledge and self esteem through group venture. The teacher, was in this way 'including' the weaker children who might otherwise have felt marginalised. This approach was not evident in the Mathematics observations.

In the following extract from a Guided Writing lesson with Year 6 children, T. 2 was introducing a new task but in the following extract she was reminding pupils about previous tasks:

T: I am going to concentrate on this today. We've had our fantasy and fiction. We wrote narratives and we made them up. I'm just going to briefly talk about non- fiction and factual writing.

(Guided Writing Observation 4, p.2)

The teacher began by using the pronoun 'we'. This was common in Guided Writing. One could suggest that it was a form of getting the children's attention or that it was also a reminder of what they achieved together and that it was therefore possible to proceed confidently. The teacher might have felt that, because they were Year 6 children, she should project the notion of greater independence.

It is interesting to note here that there was little evidence of teachers reminding children of facts learnt previously in Mathematics lessons. One could suggest that children with poor recall skills are more likely to remember lay knowledge linked to everyday events as in story telling, but

that it is difficult to link previously introduced concepts such as addition and fractions to new topics in Mathematics. However, as will be demonstrated in a later chapter, the 'inclusive we' was used in Mathematics to update absentees. The linking of previous and current tasks in Guided Writing supports Mercer's, (1995) notion that teachers frequently convey the idea that because they had succeeded in learning something in the past together it should be possible to attempt a new task together.

In the following extract, T.7 is demonstrating the difference between fact and fiction. She had drawn the shape of the character Timothy Winters on the board and explains that known facts about him as related in King sley's poem would be written outside the shape but that implied characteristics would be entered inside the shape. This was because they could not 'see' the latter.

T: Exactly, a fact is something that we know to be true. It's in the poem it's what Mr Causley.... We know that Timothy Winters' feet are bloody because it says so in the poem. Ok ? We don't know for a fact that Timothy misses his mum but do you know that when we were doing that little role play we thought that he probably does but that is something that we are making up about Timothy which is great because it means that we are using our imagination. So I want that to be called a feeling and anything Timothy might be feeling, like he misses his mum goes inside his body like 'hungry' (writes 'hungry' on the board)  
(Guided Writing Observation 5, p.7,8)

The important thing to note here is that by using the pronoun 'we' the teacher presented the facts as if the children 'knew' them. It is very possible that many of her pupils had not remembered what they had learnt in the previous lesson but, by careful phrasing she reintroduced the descriptive information needed so that the children would proceed 'together'. In so doing, the teacher was projecting the notion that they were reconstructing knowledge together. Furthermore, because she had 'assumed' that they had retained this knowledge, the children were 'given' information without the need for questioning. In this instance the teacher was not eliciting information from the children but using 'we' to conceal any suspected gaps in their recall. One could suggest that it might have been more helpful to establish what they had remembered through prompting, but she may have felt that there was insufficient time to do this. She recapitulated in a sensitive, inclusive manner projecting the idea that the children had remembered descriptions of the character. She also built on this and proceeded to distinguish between the facts stated in the poem and what they could learn from these facts.

In the following extract a Mathematics teacher was using the pronoun 'we' for different reasons. In a lesson about 'shape' the teacher was introducing a new shape, a cuboid. Although it was a new concept she was projecting the idea that it was common knowledge that different shapes exist, "we get boxes....." and that "we have a Mathematical name...". From this 'combined knowledge' emerged the new term, 'cuboid'. The children were learning new terminology but 'we' was used to imply that they already knew

about boxes but that they also needed to know that this type of box was called a 'cuboid'.

T: It's a box in a different shape. We get boxes in different shapes. It's a type of box. We have a Mathematical name for this. It comes from cube but it's not, it's a cuboid.

(Mathematics Observation 11, p.3)

One could suggest that this use of 'we' is synonymous with Mathematics, a use of 'we' that implies apprenticeship – 'We know something that you do not know.'

The pronoun 'we' was therefore frequently used by Mathematics teachers when introducing new Mathematical terminology. But it was evident that the inclusive 'we' was used to assume the children's knowledge about 'boxes' and that from this emerged the new term 'cuboid'.

And so the 'inclusive we' was used in both curricular areas but in some instances for different purposes. In Mathematics the use of 'we' was linked to the notion of apprenticeship or "we know something that you do not know". Largely the 'inclusive we' emerged as a mode of support which appeared to signify a cohesive and supportive relationship between teacher and pupil as they constructed knowledge together.

### **Initiation, Response, Endorsement and Amplification (IREA)**

Teachers were seen to use IREAs as a means of enticing reluctant pupils to make oral contributions thus creating opportunities for teachers to respond,

praise and to give further explanations by elaboration. In this way teachers and children were mutually constructing knowledge. This mode of support is akin to IRE exchanges (Initiation, Response and Evaluation) observed in mainstream settings (Mercer 1985). However, although IREs and IRFs (Initiation Response Feedback (Edwards and Mercer, 1987) were observed in the transcripts other types of exchange were noted which differed. Teachers were observed initiating interactions by questioning to which a child would respond. But in some instances these responses were endorsed through praise and amplified by the teacher. It was also a means of providing information to a pupil's peers whilst the class were 'constructing knowledge together'. Although the category 'IREA' was not truly inductive it did in part evolve from data analysis and was arguably a more fitting means of describing teachers' strategies in SpLD contexts than the more familiar terms of IRE and IRF. Arguably SpLD children need more support in the form of praise and further explanation. These issues are discussed and exemplified in the following paragraphs.

The following interlude was taken from a Guided Writing lesson where the teacher was encouraging the children to describe a fish that she had brought to the lesson. The children would subsequently be expected to write descriptive accounts of the fish. Each child was clearly fascinated by the fish and it held the attention of this small group. This strategy for holding children's attention is important for ADHD children but this aspect of pedagogy will be discussed later under the heading 'Use of Tools'. T.1 was asking the group why the fish is slimy:

T: Why do you think it looks slimy ?

DE: Because it's wet.

T: Because it's wet. Well the fish looks slimy too because it's wet.\*\*Ah

HA: It's very beautiful on the top.

T: Why?

HA: Look at those patterns on the top.

T: That's good, it has these marvellous patterns on the top (points to the patterns). Very unusual.

(Guided Writing Observation 1, p.5)

DE and HA responded with descriptive statements. The teacher praised their efforts and built on their responses by introducing further descriptive words such as "marvellous" and "unusual". By responding, endorsing and building on children's responses, the teacher had made the recipients feel that their contribution was worthwhile and valued.

In Guided Writing teachers tended to use IREAs in order to elicit responses that reflected the children's general lay knowledge. In the previous example, the children were encouraged to describe the fish in their own words. The following extract from a Guided Writing lesson provides further evidence of this. T.7 had asked what makes human skin dark:

GA: Scars?

T: GA You're charming today, anything else? Well look at your hands and your mum says "Are your hands clean?"

CHORUS: Dirt (she writes this on the board)

T: Because if it's really \*\*\* there's a word called "ingrained" which means that when something is so firmly into your skin you couldn't actually wash it off and

sometimes when you see these poor people that live on the street and some people who don't have any homes and don't get a chance to wash.

(Guided Writing Observation 5, p.4)

The teacher was endorsing and confirming their response by writing "dirt" on the board. She then proceeded to suggest another descriptive word to describe "dirt" such as "ingrained". In this way the teacher was elaborating the child's response. IREAs were also evident during Mathematics lessons, but the teachers were not seen to target children's lay knowledge rather they questioned the children's understanding of a given Mathematical concept and subsequently assisted children to share and construct their own lay understanding of the concept. The following example from a lesson about 'fractions' illustrated this.

T: .....I want you to give me a meaning for this word.  
I'm just going to write it, don't shout out. (she writes 'fraction' on the board). I want you to give me a word that means the same as that. A word that means 'fraction'. You could have the word 'fraction' in a sentence or you could substitute with a word (points to a child).

Ch: Divide.

T: No (in a manner that signals the child to think again)

Ch: A bit.

T: A bit, thank you, a point for your team. A bit, what else could 'fraction' say? Could I have a fraction of your cake? Could I have a bit of your cake? Give me a word LU?

LU: Can I have some of your cake?

(Mathematics Observation 13, pp.1,2)



In this example T.9 was asking for alternative words for 'fractions'. She had written the word on the board and was inviting a child to respond. In this instance children could not 'feel' a fraction in the same way as they could feel a fish, because fractions are abstract concepts. The teacher did however begin by questioning but she cued a child's elicitation by suggesting that the term 'fraction' could be put into a sentence. However, Mathematics teachers need to guide children to the 'right' answer. In this instance the teacher had endorsed a child's response but then proceeded to amplify by giving examples of how the term "bit" relates to "fraction". But knowledge of the term 'fraction' is prescriptive within the National Curriculum and this is reflected in the mode of scaffolding used by teachers.

There were further examples of the need to scaffold the learning of specific terminology in Mathematics. In the following extract from a lesson with Year 7 pupils T.2 was introducing 'Probability' :

T: It's estimating a guess, now is it just a given that you pluck out of thin air?

Ch: It's like gambling like horses you have to know which horse.

T: Right you have to know your options.

Ch: You have to \*\*\*

T: It's what we call an educated guess you see what the possibilities are and then you make your judgement on what the options are for you. ....

(Mathematics Observation 9, p.1)

The teacher initiated the dialogue with a question. A child responded but this did not fully answer the question. The teacher however acknowledged the child's efforts but introduced the word "options". She then "amplified" by elaborating the term further and used 'inclusive we'.

Examples of teacher and children constructing knowledge together were also evident in the following extract. A group of Year 6 children were naming and defining different kinds of fractions:

T: Right can I have DO and GI to the front please. Right what's the other way he can describe the yellow ones?

CH: A half.

T: A half, thank you so this bit here is the same as a half (pointing to three out of six) because if you've got three out of six you must have half of them. OK GI thank you.

Next person. This team now then, LU?

LU: Nine, out of nine and three out of nine add three out of nine.

T: Equals.

LU: Nine out of nine.

T: Nine ninths which equals.

LU: One whole. I have two threes. I can also divide it in threes.

(Mathematics Observation 13, pp.9,10)

T.9 and pupils were constructing knowledge about fractions together. T.9 was holding six cubes, three were yellow. The teacher was asking CH to describe the yellow cubes in terms of a fraction of the whole. CH responds accurately. The teacher repeats the child's response, affirming accuracy and

praising the child. The teacher amplified further by indicating that three out of six was a half.

Although infrequent, the learning of specific terminology was sometimes targeted in Guided Writing. In the following extract the teacher was introducing a written task. However she wanted the group to write a story in the form of a recipe. She tried to elicit the term "procedure":

T:..... But science what do you write up in science?

Ch: Write up an experiment.

T: Ex-per-i-ment (writes this on the board). In science you write up experiments or you write investigations. In other words just take science for an example, you follow a certain pro-pro-pro.

Ch: Progress.

T: No, no, no you follow a certain format.

Ch: Pro-cede.

T: Getting close. You follow a certain procedure.

AH: When you've got a procedure it means you proceed in a certain way, order, I think.

T: Yes in procedural writing we follow a certain order, a good word to use, order.

(Guided Writing Observation 4, pp. 2,3)

T.3 was testing the group's scientific knowledge. A child's response was recorded on the board. The teacher built on this and suggested the alternative term "investigations" and proceeded to amplify this suggesting that you would follow certain "procedures". T. 3 made the point on a later questionnaire (App. 16) that she was attempting to establish a definition of

'procedure' and commented that she had affirmed that the child had made a good response. In this instance the teacher was aware that praising a child was important. She also commented that: " In Guided Writing, even though my lesson had a specific framework you are trying to draw the children out to get their ideas and thoughts. The objective is to help the children structure their own imaginative ideas. In a Maths lesson specific facts have to be taught"(App. 16). These comments support the idea that some teachers were aware that their support strategies sometimes differed depending on what was being taught.

The above extracts show that IREA modes of scaffolding were evident in Guided Writing and in Mathematics. However, whereas teachers were observed targeting the learning of specific terminology in Mathematics, they tended to elicit and build on the children's own interpretation of events in Guided Writing unless specific terms needed to be understood. This occurred in the extract when children were required to know and use the term 'procedure' meaningfully. This demonstrated how personal, socially contextualised knowledge provided a basis for more formal learning.

One could argue that an IREA type support is similar to IRE in mainstream classrooms but that further amplification is necessary in the context of SpLD because of the nature of the children's difficulties. Of course there are SpLD children in mainstream classrooms and this is problematic for the teachers. There was evidence of other modes of questioning. These are discussed in the following paragraphs.

### **Multiple Probes**

Edwards and Mercer, (1987) argue that teachers typically ask many questions but invariably know the answers. So why do teachers question children? Within the context of the 'mutual construction of knowledge' one might suggest that they question in order to establish what a child knows and what he or she needs to know. But teachers' questions sometimes contain clues that enable children to give accurate responses. This is another indication that teachers wish to elicit accurate responses from pupils, particularly if the children have experienced failure in the past. Initially this category was labelled 'Teacher Questioning' but on further analysis of data it emerged that teachers were frequently observed initiating question - response sequences, but that these were immediately followed by further probing questions without intermittent elaborations by the teacher. One could argue that children with poor recall skills might benefit from this mode of support because questions were brief and required short responses so that teachers could proceed to the next point. However teachers' questions tended to contain appropriate clues to facilitate further responses. At this stage this code was linked to a subordinate code: 'facilitated moves' but this was later discounted because it was necessary to reduce the number of codes. Consequently the code 'Teacher Questioning' was refined and labelled 'Multiple Probes'.

In the following extract from a Guided Writing lesson, T.7 was trying to establish what the children remembered about a character from a poem which they had read in the previous lesson:

T: I said his parents, does he have a mum and a dad?

Ch: His parents went away with a bombardier.

T : His mum went away with a bombardier. And what is a bombardier again?

GA: It was someone who drives a bombardier plane

T: So when do we think the poem had been written?

TI: In the war.

T: In what war ?

(Guided Writing Observation 5, p.6)

Teacher and pupils were recalling facts together, as the teacher tested their knowledge of certain facts such as the meaning of "bombardier". The teacher took advantage of GA's knowledge and questioned him further about related topics such as the war. This extract also exemplifies Stone's, (1998) notion of 'situational diagnosis' (p.348) when a teacher probes in order to give the right kind of assistance.

Multiple probes emerged as a means of establishing associated knowledge which the child knew and of which the teacher was unaware. In the following extract the children were also required to discuss factual knowledge. They were describing the mackerel which the teacher had brought to school:

T: Don't press it. How does it feel how does the surface feel?

PA: Cold

T: Apart from it being cold, it's not just cold, it's something else.

Chorus: Slippery.....slimy

T: Slippery slimy, good. Does it feel rough at all, how does the surface feel, how would you describe it?

SA: It feels a bit rough (stroking the fish).

(Guided Writing Observation 1, p.3)

It was interesting to note here that T.1 repeated the word 'feel' in her questioning. In this way she was inviting her pupils to feel the fish. When HM said that the fish felt cold she tried to elicit further descriptions. The children responded, further probing occurred and this was followed by a response from SA.

It appears that multiple probing by teachers occurred in conjunction with elaboration in creative writing tasks, when teachers needed to focus on factual knowledge. This might be explained by the fact that teachers typically offer more assistance to children with the phrasing and planning of ideas in creative writing, as illustrated in earlier paragraphs. In this extract however children were responding to factual information about an object that they could see and feel. In the following extract from a Mathematics lesson T.5 was trying to establish what the group knew about the properties of a triangle. Unlike the 'fish' extract the notion of a triangle was less tangible but factual.

T: A triangle. Well done, that's right. How many sides has a triangle got?

Ch: Three.

T: How many sides has that got? (asking an inattentive child)

Ch: One.

T: How many wheels has a tricycle got?

Ch: Two.

T: A tricycle.

Ch: One.

T: A triangle's got three sides. A tricycle's got.....

CA: (shouting) One, five, six

T: Three sides a tricycle, triangle.

(Mathematics Observation 6, p.1,2)

T.5 was questioning the group as a whole, in this way they were engaging in the 'mutual construction of knowledge'. The first child gave an accurate response but she then questioned a child who was distracted. He gave the wrong answer and she proceeded with cued elicitations. The child CA started shouting and giving irrelevant responses, but the extract exemplified a teacher probing with questions whilst also cueing a child en route as she targeted factual knowledge. This was a common approach in Mathematics.

In the following extract from a Mathematics lesson, T 2 was also questioning pupils' knowledge of factual information and terminology. They were learning the key features of the number seven:

T:.....This is the key number for today.(writes 7 on the board). Tell me what you know about the number seven  
TH.

TH: It's a prime number.



T:(writes prime number on the board). Jolly good.

Someone give me a definition of what a prime number is,  
AL?

AL: A prime number is a number that can only be divided  
by itself.

T: Jolly good. What else can you tell me about the number  
seven? It's the square root of what number? It's the square  
root of what number?

Ch: Fourteen?

T: No, Fourteen would be double seven.

Ch: Oh yes.

T: TH?

TH: Forty nine.

T: Forty nine. Yes so (writes forty nine on the board) It's  
the square root of forty nine. Anything else you can tell  
me about that number?

Ch: A cardinal number?

T: It's a cardinal number. Well done (writes cardinal  
number on the board).

(Mathematics Observation 8, p.1,2)

T. 2 was probing through persistent questioning in order to compile  
information about the number. She gave clues: "It's the square root of which  
number ?". A child gave the wrong answer but the teacher cued by implying  
that it cannot be 14 because 14 is double seven. This explanation prompted  
the correct answer from TH allowing the teacher to probe for further  
information.

These examples illustrate how teachers in Guided Writing and Mathematics  
lessons enter into multiple probe type interactions with pupils when eliciting

factual information. Persistent questioning may also be a useful form of scaffolding when teaching children with poor recall of information and who are frequently inattentive. Such children can remain on task for brief moments only and can be distracted by surrounding stimuli. However, persistent probing by the teacher arguably 'holds' a child's attention whilst subsequent questions help the recipient to process information. Of course verbal responses to teacher's questions would inform other children in the class, thus teacher and pupils are mutually constructing knowledge.

The notion of cued questions is linked to Stone's, (1998) explanation of 'prolepsis'. However, there was little evidence of prolepsis in the transcripts. Stone suggests that if adults infer events to children then the children are led to believe that they will come to understand the referent. If they do not, a certain amount of 'cognitive tension' (p353) follows but eventually leads to a richer understanding of concepts because of the preceding tension. Stone however cautions that children need to be alert and sufficiently motivated to engage in such preleptic interactions. This might explain the absence of 'prolepsis' in the scaffolding of children with SpLD.

### **Reformulations**

Teachers frequently reformulate children's responses. Mercer, (1995) suggests that they do so in order to "offer the class a revised, tidied up version of what was said which fits in better with the point that the teacher wishes to make" (p.32). Reformulations are common in mainstream schools, but the teachers in this study frequently appeared to use this mode of

scaffolding for other reasons. Children with SpLD frequently experience difficulties when asked to give verbal explanations particularly if they have poor recall skills. For example, they may begin a sentence but forget what they had intended to say in the first place. Reformulations of child responses are therefore an effective means of presenting a child's contribution in such a way that is acceptable to the speaker and understood by peers. Furthermore in so doing the teacher is pre-empting possible failure which the child might otherwise result in the lowering of self-esteem. The data also revealed instances when the teacher 'became the child's voice' when children had speech deficits. This code therefore was adopted because it described instances where teachers reformulated a child's response whilst constructing knowledge together.

In the following extract from a Guided Writing lesson T.3 was introducing Procedural Writing or knowledge of how to carry out a task, to a group of Year 5 children :

T:.....Now what is a recipe ?

Ch: It's how you make food.

T: It's cooking. Now we have a recipe. What is the first thing you see when you look at a recipe book ? What is the first thing ? I know that cooking for boys has become just as interesting as cooking for girls. When I grew up girls went into the kitchen and boys didn't.....

(Guided Writing Observation 4, p.4)

Although questioning a child, one could argue that T.3 's question was 'closed' i.e. too closed to elicit a child's natural response and could, as such,

be viewed as potentially problematic. Although the child had given a plausible answer she suggested an alternative term, 'cooking', because it was more closely linked to 'recipe'. It also alerted the class to this terminology which the teacher deemed to have "educational significance" (Mercer,1995 p.32). In this way the teacher was creating further opportunities to construct knowledge. She elaborated with an anecdotal account of her school days. The children were amused and interested and in this way she was 'holding' their attention. As mentioned in an earlier paragraph, this was an important strategy in a SpLD environment. However only one of the participating teachers who completed the questionnaires refers to the element of humour: (see App.17), so the extent to which it was part of a deliberate teaching strategy is questionable.

The following is an extract from a Guided Writing lesson cited earlier, during which a teacher is discussing the poem 'Timothy Winters' with Year 4 children. T.7 had drawn the outline of a person on the board and was pointing out the difference between 'factual knowledge ' and 'implications'. As the children responded, the teacher wrote the facts about the character outside the 'body' because they could 'see' these features. She wrote characteristics that the children had implied from the poem on the inside because these could not be 'seen' and were therefore implied.

T: Actually it was CH who told me, why do you think his belly was white ? Can you remember CH ?

CH: Because he only ever had sweatshirts on.

T: That's right, because he never goes to the beach or goes to some nice warm country.

The group was engaged in a combined writing task. They were responding to the facts about the character in the poem. The teacher asked the child CH why Timothy looked so pale. CH knew the answer but his verbal skills were weak. CH was trying to explain that Timothy could never get a tan because he had never visited warm places so had never had the chance to remove his shirt. The teacher interpreted and paraphrased his explanation (Edwards and Mercer, 1987) and sustained the dialogue by reformulating and elaborating the child's remarks. In this way the child had retained authorship of his original contribution.

This may occur more frequently in classrooms where children express themselves with difficulty. Mercer, (1995) suggests that when teachers reformulate child responses "the learner's own remarks are incorporated into the teaching-learning process" (p.32). This notion is exemplified in the following extract from a Guided Writing lesson where children with assistance from T.1 were describing a fish:

T:..... We haven't talked about its shape yet. What can we say about its shape ?

TO: It's long (fingers the shape in the air) and it goes in like that. It actually goes out at the end.

T: (nodding) Yes it's very slim before its tail.

CU: Well it goes down (pointing) and it's like a stretched out circle. There's a triangle at the end.

T: Oh that's fantastic because do you know what came to my mind ? Do you know the word 'oval'? (making a shape in the air).

CU: And with a triangle at the end.

T: Fantastic, a long stretched oval with a triangle at the end.

CU: Isn't an oval like a circle?

T: Well in fact an oval comes from a circle.

(Guided Writing Observation 1,p.6)

The child TO was attempting to describe the tail region of the fish. The teacher affirmed his response but suggested a more concise version : "...it's very slim before the tail". This elicited a response from CU who said that the fish's body was like a "stretched out circle". The teacher reformulated his words by introducing the word "oval". She then reformulated the responses of both children in a single statement: "Fantastic, a long stretched out oval with a triangle at the end". In this way the children were allowed to retain authorship of their initial statements because the teacher used their words in such a way that they remained identifiable. Pupils were also praised for their contributions. Praise and motivation emerged as common threads throughout the research data.

There was an occasion when the reformulation of a child's response occurred through demonstration. In the following extract from a Mathematics lesson, the children were learning the meaning of 'Symmetry'. The teacher had folded a paper rectangle in half and put a blob of paint on one side. She asked the group what would happen if she folded the paper down on the line

of symmetry. The child SA responded but he had severe expressive language problems:

T: SA, what's going to happen ?

SA: They will when you shove it, when you open it you'll see another one on the side. It's like the paint brush but you pick it up ( points to his palm) and you shut it (clasps hands together).

T: Well shall I shut it and see what happens?

Chorus: Yes.

T: (folding the paper along the fold) Right, just need to ease it down.(presses the paper along the fold).

Ch: Doesn't always happen.

SA: It worked

(Mathematics Observation 12, p.2, 3)

The teacher knew that SA had severe expressive language problems and she frequently needed to interpret his explanations for other members of the class. However on this occasion she did not attempt to rephrase SA's explanation. She indicated to SA that she had understood because she had asked SA if she should 'shut' the paper. By using his word she was affirming his suggestion.

This extract is noteworthy because SA's suggestion was reformulated through demonstration. SA may have been embarrassed about his speech problems and this could explain why the teacher did not highlight the muddled response. It is worth noting here that when asked to characterise the type of support which she was giving T.1 suggested that she was ..." hoping that SA's inability to express himself would not be an issue in his

understanding of the concept" (App.15). This suggests that the teachers' reformulations were not necessarily 'corrections', but verbalisations of what children with expressive language problems were trying to say. She also ignored another child's negative comment and thus allowed SA to emerge, self esteem intact.

When a teacher 'becomes a child's voice' in the context of SpLD classrooms, it should not be construed as negative scaffolding. It is not so much speaking for the child rather, a teacher is modelling for the child with difficulties by presenting the child's response in a more palatable form, that is acceptable to the child and also to peers. One should mention here that language deficits are addressed by Speech and Language Therapists at this school. It is therefore the class teacher's remit to assist the child to function within the classroom environment rather than attempting to address a child's speech impediment.

Children with SpLD are a heterogeneous group with diverse learning difficulties. The following subsection highlights how teachers were observed recapping information - a strategy widely used and very important for children with poor recall.

### **Recaps**

This code was closely linked to Edwards and Mercer's, (1987, p.82) reference to " recaps and summaries". These researchers were referring to instances at the beginning and end of lessons in mainstream settings.



Arguably, although teachers in SpLD contexts frequently recap information, their motives were different because of the nature of children's learning difficulties. And so although the code was not truly inductive it remained an apt label.

The recapping of information introduced and discussed during previous extracts was evident in many transcripts. This suggests that it was an extremely important form of support when used in connection with children who easily forget what they have been taught. Analysis of the data revealed that SpLD teachers were typically sensitive to pupils' needs and many lessons began with recapping information. In this way children were given reminders by teachers in order to proceed with new tasks without publicising the fact that they might have forgotten. The teachers frequently projected the feeling that they were progressing together within a supportive environment. It also appeared to be a useful means of soliciting a child's interest during task induction - a 'sine non qua' for effective learning (Wood and Wood, 1996).

In the following extract a Mathematics teacher (T.2) was explaining to two children, who were absent on the previous day, what the group had been doing. This was necessary because without this information they would be unable to complete the next task:

T: Right you have to know your options

Ch: You have to...

T: Right it's what we call an educated guess you see what the possibilities are and then you make a judgement on what the options are for you. So what happens HA and CA (both absent earlier) is that each of the little groups was given an activity so this group (pointing to yesterday's worksheets) for example had to choose a card from the pack and shuffle right ? and every time they picked a card what did you do CR?

CR: We wrote down what colour it was, black or red and the suite.

(Mathematics Observation 9, p.1, 2)

The teacher was working with a group of Year 7 children in a lesson about probability. She explained to HA and CA, the absentees, how the other children had carried out the activities. The teacher also asked the child CR to explain what he had done. In this instance, a teacher whilst outlining a previous task to children who had been absent, also involved a peer who explained what he had done in the previous lesson. In this way she was introducing new material to a formerly absent child and consolidating information to children who were present.

Similar modes of verbal support were observed in Guided Writing lessons, but as the following extract illustrates, recaps served more than one function. The following interlude was taken from a Guided Writing lesson. T.1 was explaining that because the child CH had been absent during a previous Art lesson she would need to describe the work that had been done by his peers:

T: I'd like you all to come and sit in a circle on the floor. A nice circle. HB we're waiting for you please. More round

towards DS. So on Friday when it was our Art lesson you did some painting Yes? I'm going to tell CH because he wasn't here.

CH: Like that one. (pointing to the paintings)

T: I thought that firstly I'd show CH your paintings because they were really good. Looking at these it will help you to remember what the fish looks like. Do you remember which paint you used?

AL: Water paints.

T: Yes that's right water colours. Just turn to the side a bit JB so that everyone can see. This is NI's that's nice you see how he's put the colour across here and put the pattern on top of the fish. This is PH's a very \*\*\*\*try here with all the different colours that she saw. Well done PH. AL you've got a lot of lovely colours here and he's made his paint nice and watery.

(Guided Writing Observation 1, p.1)

The teacher's recapping in this instance had many functions. Firstly it was a reminder of work done previously for the benefit of a child CH who had been absent during a previous lesson. However, the teacher was recapping by systematically describing other children's paintings. The strategy was thus two pronged. On the one hand it served as a reminder but was also a way in which the teacher complimented the children's work through descriptions, systematic praise and questions regarding the type of paint used. The teacher elaborated further by describing how they had achieved certain effects, thus demonstrating approval.

Recapping was also a means by which teachers 'set the scene' for a new task thus creating a setting for novel information . In the following extract from a Guided Writing lesson, a teacher was 'preparing the ground' for a creative writing activity. This Year 7 group would initially design masks which actors would have worn during the period studied in the History lesson :

T: Right hurry up FM, JL, you will need a pencil and a rubber. Hurry up we need to get going straight away. Now let's just think what we were doing in History today. Ummmm we were talking about the origins of tragedy. We found that most plays being shown today are comedy but second were the musicals and tragedies. Plays were very serious and dealt with serious issues. We found that they originated from festivals. Plays were very serious.. the song that you sang when you sold your goods. There was a party, drink and music and they wore masks. The city street would take control. If there was bad behaviour\*\*\*. They think they'd make it more formal and part of the festival would be in a big theatre \*\*\* and men in their \*\*\*\* would write their own speeches and act them out, design themselves a mask.

(Guided Writing Observation 2, p.1)

T.2 did not question the children, but recapped using the 'inclusive we'. This projected the notion that they were remembering facts together. This extract therefore showed how teachers use more than one strategy at any one time. Although the extract is a monologue, T.2 might also have felt that there was insufficient time and that she needed to ensure that each child was 'given' the prerequisites for the next task. One could also suggest that she did this because she knew that some children would not remember detail but would

need to begin the task as quickly as possible. However teachers, on the whole, did involve children through elicitation when recapping information particularly when new tasks were linked to previous work. The following extract illustrates this point. T.7 and a group of Year 5 children were recapping information about a poem which they had read the previous week:

T : He's so poor he sleeps in a sack.

Ch: His dad sleeps in a bed (she writes "his dad sleeps in a bed" on the board)

T: Well remember let's be careful here because last week we did some fantastic role play work where we decided what might happen but remember what's in the poem and what we made up about the poem. We think his dad probably had a bed. Tell me something else about the way he looks.

MA: His eyes are as big as footballs (T writes this on the outside of the shape on the board)

(Guided Writing Observation 5, p.2)

The teacher here was involving the children through elicitation, again using the 'inclusive we'. She was distinguishing between fact and inferred information contained in the poem. When a child implied that the character's father slept in a bed the teacher reminded him that they had made up that information and that it was not necessarily true. This reminder elicited further descriptive information from MA who said that the character's eyes were " as big as footballs". In this extract the teacher and children were recapping together. However the interaction highlighted what the children had forgotten but that which came to the fore within a supportive environment.

## **Summary**

The strategies described in this section were interpreted as part of 'mutual construction of knowledge' - a necessary element of 'constructing an effective learning environment' because arguably, children with SpLD find it more difficult to construct knowledge on their own.

This section has outlined different modes of scaffolding used by teachers in SpLD contexts that were linked to the notion of 'mutual construction of knowledge'. Teachers were observed providing opportunities for children to speak freely and these in turn enabled teachers to praise pupils for their contributions thus boosting pupil self esteem. The children were questioned and in some instances responses were 'amplified', or on other occasions reformulated, particularly when a child had expressive language difficulties. Teachers used the 'inclusive we' in order to link previously taught concepts with new topics. It appeared in some instances that the teachers assumed that the children had remembered, so recalling information using the 'inclusive we' emerged as an effective means of updating the children, who may have been unsure, without exposure.

Teachers tended to create environments that were conducive to learning. In both curricular areas teachers strove to engender positive self esteem in pupils. In a 'safe' and supportive environment children were seen to speak freely without fear of exposure or ridicule. Children's erroneous responses were not highlighted, rather they were transformed through reformulation

into a version which was more acceptable to the speaker and to peers but which also allowed the child to retain authorship. In Guided Writing teachers tended to elicit oral contributions that reflected a child's lay knowledge. In Mathematics these tended to relate directly to Mathematical concepts and terminology. Children were encouraged to speak freely or given 'honoured voice' (Olfather, 1993) in both subjects but in Mathematics children were expected to relate directly to current topics.

In Guided Writing children were encouraged to express feelings and offer descriptive accounts which were often fictitious. The use of 'inclusive we' projected a feeling of working together in both curricular areas. However, it was also used by Guided Writing teachers when recapping information, particularly if children were known to have poor recall skills. IREA's and the use of multiple probes were evident in both subjects. However in Guided Writing children were questioned about lay knowledge whereas in Mathematics specific terminology and concepts were targeted. The above extracts exemplified ways in which the teachers' 'social' approaches were adjusted according to what was being taught. In this way effective scaffolding was seen to be dependent on subject area.

The following chapter highlights ways in which teachers 'negotiated failure' in SpLD classrooms and how this is linked to the core category because through the negotiation of failure, teachers are once more 'creating an effective learning environment'.

## **Chapter 5: Data Analysis - 2<sup>nd</sup> Category:**

### **Negotiating Failure**

As discussed in Chapters 3 and 4, children's motivation to participate was suggested to be linked to how successful teachers were at 'setting the scene' and creating socially rich and motivational learning environments.

According to this account, teachers needed to show sensitivity and to ensure that children's contributions were valued and that pupils felt that they could make oral contributions without fearing exposure and failure in front of peers. Children with SpLD have, typically, experienced failure in the past, this frequently resulting in negative cognitive patterns such as believing that the work was too difficult or feelings such as, "I don't know where to begin" (Bruning and Horne, 2000, p.12). Educators also needed to encourage pupils to treat their peers' ideas with equal respect (Oldfather, 1993). If children are to be confident participants one could argue that tasks need to be within reach so that they felt at the onset that, with the teacher's help, they can master a task and that having achieved, further success will follow (Flower, et al., 1990).

At this juncture in the analysis process there emerged a significant theoretical concept which prompted the writer to challenge the utility of the scaffolding metaphor per se in the field of SpLD. The analytic process so far revealed the presence of a strategy used by most teachers which was the need to maintain the children's self esteem. One could suggest that because it



underpinned teaching practice in SpLD classrooms the sub categories of strategies which emerged would seem bi-functional. In the first instance it has been demonstrated how these facilitate the 'mutual construction of knowledge' but it would seem that before learning can take place children needed to feel that they had the confidence to participate and learn. So if one retains Wood et al's notion of the child's learning as the 'edifice' then perhaps the inner layer/ foundation of the building could be the child's self esteem which must be in situ before learning can proceed. This point will be revisited later.

The second category, Negotiating Failure, emerged from the analysis because it was evident that teachers frequently tried to avoid situations which might make learning a negative experience. One might suggest that a 'safe' learning environment is easily created during lessons such as Guided Writing, where children are able to create their own versions of a given event or topic. Story writing is frequently pleasurable because children are encouraged to be original. Furthermore children can draw on the knowledge of fictional accounts read to them by parents from an early age so they know that stories are thematic; they have beginnings and endings and contain exciting, descriptive elements. However children with poor literacy skills frequently find written tasks onerous. They are hampered by poor spelling, handwriting (Sassoon, 1983) and punctuation and are easily demotivated.

The nature of Guided or Creative Writing contrasts with the precise nature of Mathematics. In Mathematics teachers teach concepts known by them but

which children need to learn. However the outcome of multiplying four by four will always be sixteen whereas children's individual written accounts in Guided Writing are frequently based on experience and imagination. As such the outcome is more varied. As there is one correct answer, the process of understanding, which precedes accurate responses in Mathematics, may be a more difficult process than producing the desired story in Guided Writing. Such qualitative differences in the two curricular areas might lead one to expect some differences in the nature of teacher support because teachers are targeting different outcomes.

This chapter discusses ways in which teachers were observed to avoid situations in which pupils might experience failure and how the scaffolding of children with SpLD is not a "flimsy structure" rather, it is akin to a "flying buttress" which remains as a support and "...then itself becomes an integral and evolving part of the new structure" (Donahue and Lopez - Reyna, 1998, p.399). In this way cognitive development proceeds as further knowledge is built on existing foundations.

Children with specific learning difficulties in large classes in mainstream settings can experience feelings of failure in the absence of trained teaching assistants. But specialist teachers in small group settings in special schools are equipped to adopt strategies in order to prevent this happening. Whilst continuing the theme of providing a safe and motivating environment, the following paragraphs illustrate how teachers try to prevent children from experiencing failure and how they strive to enhance children's self esteem.

### **Use of Tools and Illustrations**

This concept was not present during initial attempts at marking up the transcripts. At the subordinate level this code was included with 'Facilitations'. As I revisited the transcripts other linked concepts emerged such as 'Use of board'. However further analysis revealed that teachers also used concrete aids in order to explain concepts. It was then decided that there were sufficient examples of the subordinate codes to warrant the naming of the code: "Use of Tools and Illustrations".

Mathematics teachers were frequently observed to use tools and illustrations to support children who appeared to be struggling to achieve the desired outcome of tasks set in Mathematics lessons. For example, teachers were seen to indicate to charts that frequently contained the answers. In the following extract, T.4 was helping the children to count backwards from 100. ML reached 60 but then experienced difficulty. The teacher intervened with a reminder but his response indicated that he needed further assistance. She offered further support by giving him a chart. This allowed him to access the numbers in descending order. He continued to need support and she intervened once more. ML subsequently succeeded and was praised for his accurate response. The teacher intervened at appropriate junctures to enable the child to succeed. Although the chart contained the answers it also highlighted number sequencing. In this way the teacher had avoided failure but was simultaneously highlighting accurate number ordering. This example highlights the contingent and sensitive nature of the teacher's approach:

T: Well done, can you start from 100 and work backwards?

ML: 100, 90, 80, 70, 60, 70

T: 60, 50,

ML: 30, 40, 50, 60, it's too hard going back

T: Let me give.... Just look at this guide (gives him a chart)

ML: 100, 99, 80

T: 90

ML: 70, 60, 50, 40, 30, 20, 10, 0

T: He was successful because he went quite slow and didn't try to rush. Just try it once more and don't rush.

ML: 100, 90, 80, 70, 60, 50, 40, 30, 20, 10, 0 (looking at the chart )

T: Well done, are you going to try it without the chart?

ML: 100, 90, 80, 70, 60, 50, 40, 30, 20, 10, 0

T: Well done (gives the chart to JY) OK, how about if you start in tens and you count up in 10s getting bigger.

(Mathematics Observation 7, p.3, 4)

During the same lesson VC felt disappointed that he had not performed as well as he did in a previous lesson. The following extract illustrates how the teacher acknowledges that VC had negative views about his performance and recognises that he is vulnerable. She pointed to the record sheet that showed daily progress.

VC: I don't think I beat myself today.

T: Are you sure? (pointing to the sheet) these were today's and these were yesterday's. How many were yesterday's? Yesterday's are the ones already been marked. 1,2,3,4,5,6, and how many today?

VC: 13.

T: 13, so which is bigger?

VC: Today's.

T: Well done.

VC: I think I did beat myself.

(Mathematics Observation 7, p. 1)

She reassured him and suggested that he should total the marks accurately in order to make comparisons. She was thus engendering positive beliefs about his performance and countering negative cognitions. This notion was supported by VC in first line of this extract: " I don't think I beat myself today" but later thought differently: "I think I did beat myself today".

Another form of direct scaffolding was evident in the following extract from a Mathematics lesson during which the year 2 children were learning about 'Shape'. T.1 encouraged the children to note differences between rectangles and squares and highlighted the differences through demonstration.

T: (holding a book) This is a rectangle and (holding a sheet of A4 paper) this is a rectangle. What's the difference?

Ch: This one's longer (points to the A 4 paper) and this one's fatter.(points to the book)

T: Right

VI: One side is longer here and one side is shorter and in the square is all the same.

T: Fantastic, I'm going to promote you to Chief of Detection Squad, Are you all listening, detection, the square has all the same sides.

(Mathematics Observation 6, p.5)

The children were unsure and she offered considerable support at appropriate points. By holding up the shapes and indicating each shape she clearly demonstrated the differences. She 'faded' assistance by saying 'right' indicating to a child that it was all right to proceed. This also gave the child an opportunity to verbalise his thoughts and to give an accurate response. The teacher praised his efforts although he would not have known the answer without considerable support.

Further "Use of tools and Illustrations" was exemplified in the following extract from another Mathematics lesson.

T: (pointing to the board) Try to remember the word, we're building up on knowledge

LU: Nine

T: You're very close

Ch: I know what it is Miss

T: Are they likely to be an odd number? (tone is questioning)

Ch : Seven.

T: FR?

FR: Four?

Ch: Seven.

T: (T holds a cuboid and points to each corner) .

Chorus: Eight.

T: (smiles) So eight vertices.....

(Mathematics Observation 11, p.4)

The children were learning the properties of a cuboid. T.8 had questioned TU about the number of vertices on a cuboid. LU gave the wrong answer but

she offered support by suggesting that he was close to the right answer. Another child tried to assist but the teacher intervened with a question in order to guide the children's thinking. This was reinforced further by the questioning timbre in her voice. The teacher was trying to avoid further wrong answers so she pointed to the corners of the cuboid in order to elicit the correct answer. It is interesting to note also that at no point did she label any of the responses as 'wrong' or respond with a negative comment. Although the children had received considerable assistance she smiled and repeated "eight vertices". The teacher dealt with a wrong response sympathetically offering guidance through systematic questioning and manual indication. It would seem that teachers behave instinctively in this way if they believe that children are unsure or that they are about to give the wrong answer.

One could argue that merely 'giving' the answer to a child could be labelled negative scaffolding, because there is no proof that the child has understood the concept or gained knowledge. But when new terminology is introduced teachers may feel that guiding the child towards the right answer is more likely to safeguard self esteem. Efforts to maintain pupil self esteem were frequently observed. In the following extract, T.1 assists the children through reminders and demonstration in a Mathematics lesson about Symmetry. The teacher reminded the children about a previous task when they had made spectacles and that both sides needed to be the same. However, in order to elicit this notion she resorted to demonstrating manually by parting her

hands from a closed position, thus indicating that the sides were identical and therefore the 'same'.

T: Very good. Something that's kind of all the same. Can anyone tell us a bit more about the word 'symmetrical' JA? Do you remember when we made these glasses ? Children in my class (holds up some glasses). Now I used these words, the glasses had to be symmetrical and what did you have to do LU ?

LU: The same.

T: On both ( she puts her palms together and opens them out)

LU: Sides.

T: Excellent.

(Mathematics Observation 12, p.1,2)

As observed in many of the extracts, teachers frequently gave praise although success was only possible after considerable support.

Use of tools in order to avoid erroneous responses and feelings of failure was not observed in Guided Writing. However, in an earlier section there was evidence of a teacher using a mackerel in order to elicit descriptive language from children in Guided Writing. However this was not linked to negotiating failure but used to elicit idiosyncratic reflections from the children which, in turn, elicited praise from the teacher. The teachers did ask children to respond to concrete objects, but this was when the task demanded that objects were described and when the emphasis was on producing rich descriptive written work, which tended to reflect each child's imagination and idiosyncratic experiences.



### **Partial Response from the Teacher**

This code was originally linked to an initial subordinate code: 'Preventing Failure' but because this was associated with other emergent subordinate codes such as 'Boosting Self Esteem' and 'Verbal Facilitations' it was decided create a more literal label, one which related precisely to the teachers' actions. This helped me to label other codes according to their functions. The emergent data revealed that teachers 'Negotiated Failure' by beginning to answer questions posed to hesitant children. In this way pupils were cued to the correct answer by a 'partial' response from the teacher. This strategy was more evident in Mathematics lessons. This mode of support highlighted the supportive and caring nature of the teachers.

In the following example, T.5 was introducing and naming different shapes in Mathematics. She had asked the children in turn if they could recognise different shapes. She knew that CH, whose memory for naming objects was poor, may find this difficult, so she intervened before he was able to respond.

T: Right OK, TI?

TI: Polygon

T: Right CH it's your turn, what's that one called a  
...tri...tri...

CH: Triangle.

T: Well done on we go, VI ?

(Mathematics Observation 6, p.4)

She sounded the first phonemes of 'triangle' and praised him for his accurate response. This suggests that if teachers anticipate erroneous responses from vulnerable children then intervention followed by praise can be more effective than risking failure. Teachers sometimes wrote the answers on the board but for poor readers this was not enough, so partial responses by the teacher followed in order to elicit accurate responses.

In the following extract, a mathematics teacher was pre-empting failure by giving the impression that the child MO knew the answer and that she was just jogging his memory. T.6 had drawn a rectangle, but she also 'gave' MO the answer by writing 'rectangle' on the board. However, MO needed assistance in order to decode the word. It was unclear whether the teacher had introduced the term before but as shown in the extract, MO, with the teacher's help read the information from the board. The teacher had, in this way, negotiated failure but at the same time supported the child's learning by assisting him to identify the drawn shape and to decode the word 'rectangle' through the partial response -"re..re"

MO: Some of the sides are different because one's long.

T: What do you call that long side?

MO: A a a

T: ( writes 'rectangle' on the board and points to it).a re...  
re

MO: A rectangle.

T: A rectangle....

(Mathematics Observation 10, p.2)

It was interesting to note that partial responses by teachers were infrequent in Guided Writing lessons. It suggests that when teachers indicate answers they do so when the elicitation from the child is non-negotiable, that is, it is the teacher who knows 'the' answer. In Creative Writing the teacher was usually seen to elicit what the child knew unless of course precise terminology was required. The following extract from a Guided Writing lesson exemplifies this.

T: OK now do you know what the whole skin is covered by? The skin is covered with ....

NI: Gills.

T: Well (hesitant, enquiring tone)

NI: By gills, I mean ummmm

T: The whole skin is covered by something beginning with sc...sc...

Chorus: Scales.

T: Good, sometimes scales feel rough although the fish looks extremely smooth and shiny.

(Guided Writing Observation 1, p.3,4)

T.1 was trying to elicit descriptive comments about the mackerel that she had brought to school. However, although she expected that the children would describe the fish in different ways she felt that they needed to know some factual information about the fish. NI suggested that the fish was covered by gills but the teacher could only accept one answer i.e. 'scales' and so offered verbal scaffolding in the form of "sc, sc". The children responded accurately and were praised.

There were further examples of teachers cueing children through partial responses in Guided Writing when precise descriptions needed to be recalled. Descriptions need to be accurate if the task involves relating specific characteristics about a character in a poem, for example. In the following extract, (part of the lesson mentioned earlier about the poem 'Timothy Winters'), the teacher was targeting specific things about the character and which the children needed to include in their work. She was also exerting some authority by indicating what was appropriate (Wyatt-Smith, 1997) through partial responses.

T: Yes can you remember? It's a special name for trousers  
and we know about its existence because his dad wears  
them when he goes hunting. Begins with a br-br-br

Chorus: Britches,

T: Through his britches the blue wind blow. Because what  
is wrong with his clothes, can you remember CA what  
were his clothes like? They were enough to sc-sc-

Chorus: Scare, scare a crow.

(Guided Writing Observation 5, p5)

In this instance, there was little room for idiosyncratic phrasing and the children needed to remember lines from the poem accurately. In this way, the teacher was also recapping information through partial response. One could argue therefore that this mode of support was used in both curricular areas when specific terminology needed to be taught. The teachers demonstrated other means of scaffolding when the children needed assistance in order to give accurate responses. The following sub section

illustrates how answers to questions were inferred through a certain mode of questioning.

### **Suggestive Questioning**

This subsection is linked to an earlier section: 'Multiple Probes' in Chapter 4. However the nature and purpose of questioning in this chapter is not so much to do with constructing knowledge. It is linked to assisting children with SpLD to succeed when possible failure looms. In 'Multiple Probes', teachers' questions appeared in rapid succession and tended to be more superficial. Of course, mainstream children frequently respond inappropriately but the teachers in this study typically dealt with errors in sympathetic ways in order to keep the children's thinking 'on course' and to maintain positive self esteem. This code was originally placed under 'Teacher Talk' which later became 'Facilitative Probing'. But as I revisited the data the notion of teacher questioning became more influential in my coding. Consequently, if I felt that there were cues implicit in the questioning observed the label "Suggestive Questioning" was adopted.

The following extracts show teachers posing fewer questions but using questions which were accompanied by other support strategies such as demonstrations and suggestions as to how pupils might give appropriate answers. In the following instances, teachers were keen to assist the children to give accurate responses in Mathematics but without 'giving' the answers. In Guided Writing, however, pupils needed to be supported en route if they were to produce imaginative, descriptive accounts because children with

SpLD frequently experience negative self perceptions such as not knowing where or how to begin (Boice 1994). Such pupils were therefore poor at task initiation.

This sub category, as will be seen, contains scaffolding strategies that were inextricably linked with others discussed in other chapters. But this illustrates how teachers 'think on their feet' and draw on every possible resource in order to guide and scaffold the learning of children with specific learning difficulties.

In the following extract from a Guided Writing lesson the children were relating imaginary experiences. The child HM began by telling the group what her teddies did on holiday.

HM: And they have a holiday in Majorca.

T: Well they're going to have a holiday in Majorca, I wonder how they'll get there ?

HM: .....

T: Do they get in people's suitcases ?

HM: The little one goes

TB: They can magic themselves back need to be well organised.

T: Excellent

(Guided Writing Observation 3, p. 10)

HM had expressive language difficulties and needed considerable support when responding verbally. T.1 was keen for her to succeed in front of her peers. She offered support through suggestive questioning: "I wonder how they'll get there?". HM did not respond so the teacher made another

suggestion: "Do they get in people's suitcases?" HM took this on board and this in turn prompted TB to suggest that they could "magic themselves back..."

When teachers offered explicit support to one child this was frequently seen to motivate others as illustrated by TB above. The following extract was taken from the same Guided Writing lesson and illustrated how the teacher encouraged the child, DM, to talk to the class about what his toys do in his dreams:

DM: My dogs in one of my dreams\*\*\*\* It's actually with me in a nightmare .

T: Does he rescue you?

DM: No he's actually alive and he's really big and so he carries me on his back so he's lost then we walk around then we fall over.

T: Do you get rescued in the end or do you wake up just in time?

DM: Actually sometimes\*\*\*\*person, whatever he wants to \*\*\*

T: Well let's just hear from TB.

(Guided Writing Observation 3, p.7)

By inviting DM to speak freely about his story in front of the class the teacher was signifying her approval and that DM would be make a valid contribution. This was followed by a suggestive question from the teacher indicating a possible way forward for DM. One could suggest that by 'entering his world' T.1 was showing approval whilst suggesting ways of proceeding with his story. Boice, (1994) suggests that having beliefs that

one's knowledge is worthwhile stimulates interest and the motivation to write.

Suggestive questioning was sometimes accompanied by demonstrations. In the following extract from a different Guided Writing lesson, children were encouraged to give verbal descriptions of a fish that T.1 had brought to school.

T: Does that feel rough? (stroking the fish)

PA: When you go up it feels rough, when you go down it hurts.

T: Does that feel rough? (stroking the fish)

PA: When you go up it feels rough, when you down it's smooth.

T: That's good because in one way the scales go one way they lie flat and smooth and if you stroke it the other way it's rough like when you stroke a cat.

AL: Like you stroke a dog.

(Guided Writing Observation 1,p.4)

The children were encouraged to be tactile and to describe how the fish felt to touch. However as the teacher stroked the fish she questioned whether the fish felt 'rough'. This prompted PA to stroke the fish in both directions in order to understand what the teacher had meant. However PA gave a contradictory response and the teacher needed to clarify this by repeating the question: "Does that feel rough?"(whilst stroking the fish from head to tail). Suggestive questioning by the teacher elicited the descriptive phrase "when you go down it's smooth" from PA. The teacher supported PA's idea and



responded: "and if you stroke it the other way it's rough like when you stroke a cat". When asked to comment on the questionnaire about the nature of support strategies used the teacher argued that " I was trying to make understanding easier by giving a real tangible example i.e. the cat..." (App.15).

Suggestive questioning emerged as a useful strategy in many Guided Writing lessons, particularly when children were asked to give descriptive accounts that involved using a wide range of adjectives. In some instances the teachers targeted the recall of specific adjectives contained in a poem that the children had read and discussed in a previous lesson. The following extracts are from a Guided Writing lesson where the recall of specific information was elicited by the teacher. In such instances the nature and reasons for questioning differ from those in previous extracts because the teachers needed to target specific characteristics. In the first of these extracts children were asked to describe Timothy Winters' eyes.

T: What shape do you think MA?

MA: Really round.

T: Really round (writes this on the outside of the shape on the board) and CA do you think he's always amazed by everything he sees? Because his eyes are always big and round like that. It looks like he's going Oh (draws two big eyes on the board and circles her eyes).

Ch: Oh I know, CH's big glasses can be the big eyes.

(Guided Writing Observation 5, p. 2)

T.7 had suggested in her first question that the children might think about the shape of Timothy's eyes. MA responded accurately. This gave the teacher an ideal opportunity to link the shape of the eyes to expressions which they might project i.e. amazement. This extract usefully demonstrated how the teacher used more than one strategy. Whilst she cued the child through questioning she was also scaffolding the recipients' learning through illustrations on the board.

However, suggestive questioning was sometimes unsuccessful. The following extract was from the same lesson when the children were asked to explain why Timothy Winters' skin was so dark.

T: Do you think it's the sun that made it dark or something else that made it dark?

GA: Dad could \*\*\*\*\* but he hated it

T: It could have done but \*\*\*

CH: I know he would probably have been whipped so many times.

T: But what else, what would make your skin look so dark?

Ch: The sun.

(Guided Writing Observation 5, p.3)

The character's skin was in fact dirty. Although in this instance suggestive questioning had failed to elicit the right answer, it was a good example of how questioning 'leads' children and how this can develop thought processes. Later during this lesson the teacher focused on meanings implicit in certain phrases in the poem. She had asked the children why Timothy Winters had said 'Amen, Amen' :

T: Why does he say that. Why does he say 'Amen Amen'?

GA: He's trying to \*\*\* on him

T: Exactly, he is saying that there are children who are less, what did he say? 'Less

GA: Less fortunate.

T: (writes on the board). Good, less fortunate. At morning prayers the master \*\*\* for children less fortunate than ourselves and the loudest voice in the \*\*\* when Timothy Winters roars Amen'

(Guided Writing Observation 5, p.5)

GA's response was unclear but the teacher offered another clue through partial response: "Less..." GA then gave the accurate response: "Less fortunate". The teacher praised the child after giving considerable support. This does suggest that teachers are adept at finding ways of allowing children to succeed and because this is invariably followed by praise it signifies to children that they have contributed towards that success. In this way they are 'creating effective learning environments'.

It has been shown that Suggestive Questioning has two functions in Guided Writing lessons. Firstly, there were examples of teachers questioning in order to elicit imaginary or descriptive accounts. But teachers could not always predict what pupils would say. This was acceptable because it is consistent with the nature of Creative Writing. Secondly there were instances during a Guided Writing lesson when a teacher tried to elicit 'known' information, such as that about a character from a poem. In this instance the teacher therefore targeted specific information.

The data suggest that this mode of questioning is a useful means of cueing children so that they are less likely to give erroneous responses. The teachers were therefore negotiating failure. This was also evident when Mathematics teachers targeted specific terminology. The following extracts exemplify this.

In the first extract, a teacher's questioning contained cues that indicated that the teacher sought precise and accurate responses. The teacher was introducing the concept of 'Symmetry'.

T: Well sort of, I'll tell you what I'm going to you next.  
Now this is a triangle (holds up a paper triangle). Now I would say to you, is this a symmetrical shape? Can I fold it in half? (indicates with finger in the middle)

Chorus : No.

T: Will it have a fold line? What do you think CO? CO  
you're not really looking so what I'm asking you is do you think this is a symmetrical shape? Can I fold it in half?

CO : Yes .

(Mathematics Observation 12, p.3)

The teacher's question was cued. She did this by indicating with her finger the middle of the lower side of the paper triangle. But she needed to repeat the question before eliciting the correct response. This was because only one answer was acceptable. It needed to be an unequivocal 'Yes'. Later, and during the same lesson, the teacher questioned a child DN who had not grasped the concept of 'Symmetry':

T: To find out if it's symmetrical what do you have to do  
DN?

DN: Fold.

T: Fold what about each half of the fold (indicates hands  
parting in opposite directions) they have to be the, the,

DN: Same.

T: They have to be the same. Now DN do you think you  
could fold this so that both halves would be the same  
when I open it ?(holding up the paper arrow)

DN: No.

T: No can anybody come up if they think they could. ME  
your hand went up.

(Mathematics Observation 12, pp.4,5)

When questioned about whether a shape was symmetrical DN replied  
"Fold". The teacher needed further qualification from DN. She questioned  
further but implied the answer by parting her hands in opposite directions  
and cued DN by making a partial response: " they (the halves) have to be the  
the.. ". DN responded accurately but lacked the confidence to demonstrate  
his response.

The following extract demonstrates how another teacher, through suggestive  
questioning, was attempting to highlight the difference between different  
shapes in Mathematics. She suggested the differences through physical  
comparison.

T: Now I've got a puzzle (holding a square and a  
rectangle). This has got four sides and this has got four  
sides. Should they be the same? What's the difference  
between a square and a rectangle?

Ch: A rectangle's smaller than a square.

T: (holding a book) This is a rectangle and (holding a sheet of paper) this is a rectangle. What's the difference?

Ch: This one's longer (points to the A4 paper) and this one's fatter (points to the book).

(Mathematics Observation 6, p.5)

The teacher questioned the children but simultaneously held a book and a sheet of A4 paper. This was a further example of teachers using more than one strategy simultaneously. An accurate response followed when a child pointed out that the rectangle is "longer". But how do teachers deal with the inevitable erroneous response? The following sub section discusses how teachers in this SpLD context typically dealt with erroneous responses in sympathetic ways in order to maintain the children's self esteem.

### **Dealing Sympathetically with Erroneous Responses**

Wentzel, (1997) posits that if educators engender feelings of mutual concern and trust then children are motivated to participate even when they know that they might answer incorrectly. Discussion in previous paragraphs has indicated that the nature of teacher scaffolding is linked to what is being taught thus highlighting some pedagogical differences between Mathematics and Guided Writing. Mathematics teachers are under pressure to target specific information - information which the teacher possesses in the first instance but that which children need to acquire. In Guided Writing however a child's response can be interpreted in context and applauded for its individuality. This code originated from concepts such as 'Inviting a child to think again', 'Questioning Intonation in Teacher's Voice' and

'Complimenting Parts of Pupil Responses'. The code became : 'Supportive Intonation' which subsequently changed to 'Disguised Support'. However, it was necessary to reduce the number of codes so that they could be categorised under one of the three main categories. It was then decided that "Dealing Sympathetically with Erroneous Responses" captured teachers' motives appropriately.

In the following extract (referred to earlier) the teacher has asked CA to add 11 to 20. CA who frequently reversed digits, confused numbers thirteen and thirty one. He was not a confident child. The teacher did not outwardly point out the error, rather she asked his peers to help out.

T: Twenty can you add on 10?

CA: Thirty.

T: Thirty, yes now add one more, one more you've added

10 ....one

CA: Thirty, thirteen.

T: Can anybody help out ?

Chorus: 31

(Mathematics Observation 7, p.7)

This extract also highlights how teachers' strategies reflected differences in the nature of the concepts being taught in Mathematics and Guided Writing, because here the only acceptable answer was 31. This notion was reflected in the following extract from another Mathematics lesson. T.5 was introducing the names of shapes, in this instance a polygon. Earlier in the lesson she had used an aide - memoire : "Polly the parrot says lots of words and this shape has lots of sides" thus linking 'poly' to 'polygon'.

T: Excellent, a rectangle. What's this one ?

Ch: Pelygon.

T: No not a pelygon, remember the parrot called Polly.

Ch: Polygon.

T: Well done, polygon. Quick quick are you ready to get it in case he doesn't get it right ?

Ch: Triangle.

T: Excellent, a triangle...

(Mathematics Observation 6, p.4,5)

However, when questioned about the name of the shape, the child said "pelygon". The teacher dealt with this erroneous response sympathetically by reminding the child of the aide-memoire. The child gave the right answer and was praised by the teacher. One could argue that because of the prescriptive nature of Mathematics, it is very important that teachers do respond sympathetically to errors from pupils in order to engender positive beliefs in children regarding achievement in this area of the curriculum. Interestingly, when questioned later about this T.5 commented that she hoped that the use of "Polly the parrot" would hold the children's attention because it had a humorous element but wished she'd had a photograph of 'Polly'. This notion was supported by an earlier comment on the same questionnaire when the teacher was asked to highlight important support strategies. The participating teacher had felt that 'sight' and 'feeling' were important. (App. 17)

In the next extract a teacher praised a child for creating a symmetrical shape by default. She had previously folded a paper triangle horizontally in order



to demonstrate asymmetry. The child, CO, however disagreed and suggested that it could be made symmetrical by folding the asymmetrical shape made by the teacher vertically.

T: That is clever, but what you've done is make a little symmetrical shape.(CO has folded the asymmetrical shape down the middle so that it is now symmetrical). You've just made it shorter haven't you? Which was quite clever. It's symmetrical that way because both halves match. Yes  
DN.

(Mathematics Observation12, p.6)

Although CO had misunderstood her reasoning, the teacher she gave him credit for his response. A sympathetic response from the teacher was a useful strategy because it promoted the notion that it was acceptable to make mistakes and that it was possible for the teacher to remedy errors through explanation.

As mentioned above, erroneous responses in Guided Writing were not so much 'wrong' as open to interpretation. In the following extract, a teacher did not dismiss GA's inappropriate response, rather, she explained that in order to get rid of dirt one needed to use soap.

T: Sometimes you see these poor people and their skin is so dark you'd think it would take hours of washing to try to take that dirt off.

GA: You need to duck in the sea and stay there for five hours and then get out.

T: But the sea is not enough to wash you cleaner, you need to have some soap as well. But what about those in London GA there's no sea in London.  
(Guided Writing Observation 5, p. 4)

Although GA's response was initially inappropriate, T.5 attributed meaning by saying that "...you need soap as well...". GA's inappropriate response also became a point for further discussion: "But what about those in London".

To summarise, this section described ways in which teachers 'negotiated failure' through use of tools, making partial responses, posing questions which contained clues which in turn helped the children to give the right answers and by dealing sympathetically with erroneous responses. Teachers were in this way 'creating an effective environment'.

Teachers were observed dealing sympathetically with erroneous responses in both areas of the curriculum but there were differences in the ways that they dealt with the pupils' erroneous and inappropriate responses. It was noted that during all modes of support there was a strong emphasis on maintaining pupil self esteem. Teachers' approaches were contingent on and sensitive to the children's needs. When teachers predicted failure they tended to guide children towards giving an accurate response. Assistance was given in the form of help cards, questions containing clues, and partial responses such as saying the first syllable of the answer. It was interesting to note that tool use was only associated with Mathematics tuition.

Teachers praised the children's efforts even when considerable assistance had been given. Suggestive questioning by teachers elicited accurate responses in Mathematics and in Guided Writing. However in Guided Writing the children's ability to relate lay knowledge was targeted whereas in Mathematics questions contained probes which related directly to Mathematical terminology or Mathematical concepts. In this way the teachers' approaches were related to the curricular subject area being taught and the informal knowledge the children brought to the classroom.

The following and final analysis chapter, whilst accepting the continuous psychological support which teachers give to children, highlights the ways in which teachers act as mediators between the knowledge which children need to acquire and the children's learning within effective learning environments.

## **Chapter 6 : Data Analysis - 3<sup>rd</sup> Category: Teacher as**

### **Mediator**

The following analysis illustrates how teachers of children with Specific Learning Difficulties become mediators of learning in the classroom. By this I mean that they provide opportunities for children to learn by making connections between learners and the knowledge to be learned. The teacher is typically the more knowledgeable partner in dialogic relationships and he or she orchestrates the learning context in ways that are frequently unplanned and spontaneous. The different teaching strategies related to this theme, observed in the context of the Mathematics and Creative Writing lessons will be analysed and discussed in the following paragraphs. Teachers were observed masking children's failure, providing cognitive support, establishing parameters, revoicing and modelling appropriate language. Other strategies such as use of tools and visual aids were noted but because they were widely used they were difficult to disentangle from specific modes of support and were therefore described as they occurred alongside the main categories. It will be argued that this mediation is an essential characteristic of 'creating an effective learning environment' for learning.

### **Masking Failure**

This code was originally categorised with codes which later emerged as 'Use of Tools', 'Suggestive Questioning' and 'Use of Board'. However successive revisiting of the data yielded a multiplicity of codes and it was necessary to

collapse them into subordinate codes because of their sheer volume.

Ultimately I named the code "Masking Failure" because there were sufficient instances of situations where teachers were specifically masking a child's failure. 'Masking Failure' occurs as a subcomponent of 'teacher as a mediator' because learners and the knowledge to be acquired are, in these settings, bound up with mediating between the learner and what they sometimes fail to learn at first attempt. This code, with others describes how "Teachers Act as Mediators" whilst "Creating an Effective Learning Environment".

SpLD teachers are particularly aware of the importance of maintaining positive self esteem in pupils if children are to approach tasks feeling that they can succeed (Thomson and Gilchrist, 1997). Detailed analysis of transcripts revealed that there were instances of teachers masking a child's failure by not openly correcting an error. In this way the pupils concerned were corrected without loss of self esteem hence the category 'Masking Failure'. In the next extract (see earlier in Section 5.1) T.4 had asked a child to count upwards in tens but he quickly failed. The teacher did not say that he was wrong but produced a chart so that he could read the numbers in ascending order:

T: OK can you start from 50 and count up in tens ?

VC: 50,60,20,30,40,50

T: Shall I give you a chart (gives him a chart) to have a look. If you're starting from 50 it's getting bigger.

VC: 50,60,70,80,90,100

T: 100, good. OK now try it back then

VC: 50,60,70,80,90,100

T: Well done!

(Mathematics Observation 7, p.3)

She also pointed out that the numbers were getting bigger thus offering further assistance to the child. When a teacher assists one pupil, peers who might be reluctant to ask for assistance are informed in the process. In this way a teacher may be seen as not just scaffolding the learning of one child, but also that of the remainder of the class. The teacher's quick action allowed the child to repeat the exercise and succeed. She also praised VC for his efforts. Therefore 'masking failure' consisted of not drawing attention to incorrect responses, quick intervention after an incorrect response, and praise.

The following extract exemplified another instance of a teacher mediating learning by masking a child's failure in order to keep self esteem in tact. The teacher was eliciting different ways of exemplifying the term 'fraction'. The child said 'bit' but the teacher assisted the pupil by indicating an appropriate term 'some' on the whiteboard.

T: ...I want one of these words.

Ch: Can I have a bit?

T: Of what?

Ch: Can I have a bit of your toys?

T: Ummm you wouldn't say a bit of your toys you'd say  
(points to the other words on the board))

Ch: Some of your toys.

T: Some of your toys, fine, great. What about you AL.....

The teacher's actions were thus masking the child's erroneous response. She did not say directly that he was wrong but when she indicated the word 'some' on the board he realised that he was incorrect. He corrected himself and the teacher said "great". T.9's actions provided the child with a means of self correction with minimal exposure to failure.

The teachers masked the children's mistakes in other ways. Teacher strategies were often linked to a child's specific learning difficulty. In the following extract the child ME had demonstrated 'symmetry' by folding a paper triangle vertically along a fold. She had asked the class to comment on what they saw. The child SA, who had expressive language problems, could not say what he meant. He responded by saying "It's the same one". The teacher recognised that he was indicating that the sides were the same. SA therefore knew what 'symmetry' meant:

T: Now unfold it. Now can you see everybody? (holding a paper triangle)

SA: It's the same one

T: Can you see what's happened ? ME folded it down the middle (points to the fold) and this side matches exactly that side because you can see that when she folds it over, this shape has got one line it's called a line of symmetry. What if she'd folded it the other way?

TB: It would be the same

T: Shall we fold it the other way? I'm thinking ..... Now (folds it horizontally) it's not symmetrical that way is it ?

(Mathematics Observation 12, p.5)

The teacher was aware of and understood his difficulty and did not correct him openly. She verbalised the information that SA was trying to impart. SA knew that he was right but accepted that the teacher had presented it in a better way. The learning and use of accurate terminology in Mathematics is an essential part of the curriculum. It is what Mercer, (1995) terms 'educated discourse'. So what we see here is an instance of a teacher engaging in educated discourse on behalf of a child who cannot put known information into words. One might suggest that because children with SpLD are a heterogeneous mix, teachers frequently need to deploy strategies that fulfil the needs of any one child at any one time. However, implicit in each approach is the need to mask instances of a child's failure in order to engender self worth.

There were fewer instances of teachers eliciting correct terminology in Guided Writing lessons. In most instances teachers were observed to encourage the use of varied and idiosyncratic descriptions. In fact older children were encouraged to use dictionaries in order to discover alternative homonyms. However, teachers in Guided Writing lessons sometimes needed to explain the meaning of words when children needed to write in specific ways. In the following extract a teacher introduced a novel but 'subtle' way of writing a descriptive account in the form of a recipe:

T: .....I'm going to give you a good example. This is a  
'Recipe for making Parents Shout'

Chorus: (Laughter)



T: Quite easy I suppose you're saying.

Ch: Just smash a window.

T: Now that's exactly what I don't want. This is quite subtle. Who knows what the word 'subtle' means ?

Ch:Umm

T: I can't hear you, (short pause) Subtle means not doing things in an obvious way. So I want you to listen to this recipe.....

(Guided Writing Observation 4, p.6)

The children were asked to write a recipe for making parents shout. However the children needed to understand the meaning of 'subtle'. When questioned, a child hesitated and said nothing. The teacher masked this inability by saying that she could not hear him and proceeded to explain the correct meaning of the term.

Masking children's failure was more evident in Mathematics than in Guided Writing lessons. Teachers therefore need to adopt specific strategies in order to elicit accurate responses but simultaneously maintain pupil self esteem by masking potential and threatening inaccuracies that might lower it. Masking failure, as a sub component of 'teacher as mediator', exemplified how teachers fulfil the important role of acting as a mediator between the learner and what they sometimes fail to learn at first attempt if left to their own devices. This notion created a useful link to the following subsection where the importance of establishing intersubjectivity comes to the fore and where teachers attempt to verbalise or indicate how children should 'investigate' their thinking in order to arrive at the answers.

### **Deconstructing Reasoning Processes**

As noted earlier some researchers, notably Donahue and Lopez-Reyna, (1998) have likened the scaffolding of SpLD children to a 'flying buttress'. And so we have an image of the teacher building "buttresses" to support the child's learning whilst taking into account what the child knows. The child's knowledge is in this way built upon in order to create further cognitive structures. As the heading suggests teachers need to 'get inside a child's head' in order to assess and establish what a child already knows, what he or she needs to learn and to offer suitable support. Deconstructing reasoning processes is also concerned with teachers demonstrating or verbalising how pupils should 'think through' to get their answers.

This code was originally called 'Questioning' but later became 'Purposeful Questioning'. As further transcripts were analysed many other linking codes emerged and I needed to refine and reduce the numbers of emergent codes. At this stage I began to consider higher level categories and a possible main category such as "Teacher as Mediator" emerged. The emergence of this main category facilitated the task of grouping other subordinate codes under main categories.

The following analysis highlights the different ways in which teachers exemplified this code. The next extract was taken from a Mathematics lesson where a group of Year 7 children was learning how to calculate area.

T: Right, listen to the question BR. How do you find the surface area of just one face? Forget about the other five, I only want the surface area of this one at the moment. How do I do that? I think everybody knows but I think.

BR: Just measure it.

T: Tell me more.

BR: Measure the sides.

T: Of here, here and here (points to the sides of the cube)

What would that give you ?

Chorus : Perimeter.

T: It will give you the perimeter. BR if you measure that and that and that and that it will give you the perimeter of that square. I don't want the perimeter I want the area. Sh, I'm sure you do but (addressing a child calling out) I won't ask you if you're calling out. TO back to you .

TO: Once you find out how many centimetres each side is

T: So this is your square (draws a square on the board) so you find out, say that was four (puts 4 on one side) and that was four (writes 4 against the other side) what would you do ?

TO : You would times that you would times them together.

T: Excellent. You would times them together, so  $4 \times 4$  (on the board) is what TO .

TO: Eight ummmmm

CA:16

TO: 16.

(Mathematics Observation 10, pp.4,5)

T.6 provided cognitive support in the first instance with a broad question. She offered encouragement by inferring that they knew the answer. This prompted an immediate response from BR. BR gave an unspecific reply and

so the teacher narrowed her mode of interrogation. She proceeded to guide his thinking by evaluation, which ultimately led to the realisation that he was confusing 'area' with 'perimeter'. She illustrated BR's reasoning on the board but only entered the measurement on two sides. In this way she was hinting that only two measurements are relevant. This elicited an accurate response from TO. This extract exemplified how the teacher provided ongoing support. She served as BR's mentor, 'holding' information for him during the learning process and constantly supporting his thinking but at the same time filling in between the gaps in his understanding.

The following extract illustrates how a teacher supports a small group of younger Year 2 children in Mathematics. Having learnt how to count in tens they are adding eleven to round numbers.

T: Excellent explanation. CA if you were starting at 50 and we're adding 11 what's the first thing that we do ?  
What do we add first of all?

CA: 10

T: We add 10, 10 to 50. Can you see what the next one is?

CA: 50 add 10 is 60.

T: 60 because it's 11 you add another one. What's 60 add 1?

CA: 61.

T: 61. Good boy CA. Now then ML ready for a challenge?

It doesn't matter if you're wrong we'll help you out. (The children had been handed different coloured cubes.)

(Mathematics Observation 7, p.10)

Through structured questioning the teacher (T.4) was establishing CA's current understanding and she supported him step by step, clearly articulating how to arrive at the answer. Initially she suggested that he should add ten then a one. In this way the teacher was guiding the child's cognition and sustaining the child's learning by filling in between the gaps en route. It would seem that a teacher's ultimate goal was to offer just the right amount of support. By this I mean that a child would retain a modicum of control and was able to feel that praise is deserved even though considerable assistance was given.

Teachers were observed deconstructing reasoning processes through demonstration and by making comparisons. For example during a Mathematics lesson a group of Year 6 children were learning the concept of 'fractions'. T.9 was holding a strip of different coloured plastic cubes.

T: No these are two different colours really (looks at a child's cubes). Shhh are you listening ? You want all your cubes in a line so that any of the same colour are next to each other. Right, stick them together (index fingers together) in a line (very noisy). Right can we look at the board please?

Ch: Miss I've already done ...

T: I want everyone to have different amounts. Now I'm going to have some first and demonstrate what I want you to do. Mine is short so it's different. If you can't see properly can you move? OK can you see that I'm holding up. (holds up cubes stuck together) This is one strip OK? It is one entire strip. Now I want you to count how many

like sections there are in my strip. Put your hand up when you've counted how many.

BO: Three

(Mathematics Observation 13, p.4)

The teacher was asking the children to put like colours together in a strip. She did this in order to highlight the numbers of cubes of one colour in comparison with the total number of coloured cubes in the strip. For some children the physical act of clipping the cubes together was problematic, because dyspraxic children frequently experience difficulty with tasks which involve fine and gross motor function. The teacher was aware of this and she assisted by indicating with index fingers. By fixing like colours together she was demonstrating that there were three red cubes in a strip of six so the emergent fraction was three out of six or  $\frac{3}{6}$ ths, (she is not discussing equal fractions at this juncture). Her actions illustrated how she supported the pupil's cognitive processes during the learning of this concept. The teacher here was showing the children how to use the cubes correctly in order to help them with their reasoning. This was an important strategy because it rendered 'thinking' visible rather than leaving children to infer how to get from the question to a response.

In the next extract T.2 had asked a group of Year 7 pupils to write an account of how Odysseus felt after a tempestuous sea voyage. The teacher had offered support through questions which would guide the children towards information that they would need in order to complete the task.

T: What about, do you want the audience to feel sorry for him. You want them to feel anxious for him.

Ch: He doesn't know

Ch: He will in the end, if there is an end.

T: Now, so good that's what you want your audience to feel you really ...to, to feel they want Odysseus to get back and meet his son, pity him, all the hardship he's been through. Just tell me what he's gone through, what he's done.

Ch: He nearly got drowned in a boat.

T: He's endured two sorts of storms, good what else has he suffered?

(Guided Writing Observation 2, p.4)

The task had been outlined in a previous lesson and so she expected the children to include these points in their accounts. In this instance she was being prescriptive through suggestion thus deconstructing reasoning and 'steering' the children towards the right answer. The children could choose how they expressed this information but the facts would need to be related by each child in their own words. This frequently happened in Guided Writing lessons where children were relating facts as opposed to being given a title such as 'A visit to the sea-side ' about which to write. In the latter, children would write about personal memories and their accounts would be varied and idiosyncratic. But when pupils are asked to describe specific features of events or objects their descriptions need to be "accurate" that is, validated by the teacher. This extract showed that when children need to recall and describe specific features in Guided Writing, teachers adopt similar strategies to those used in Mathematics lessons. Deconstructing

reasoning processes emerged as another effective strategy used by teachers within an effective learning environment.

However children with SpLD are not always passive recipients in the learning process. Children do misbehave but teachers need to establish parameters for behaviour to ensure that learning takes place. This is discussed in the following sub section.

### **Establishing Parameters for Behaviour**

Teachers, as mediators, prepare the ground, support, provide information, fill gaps in children's knowledge and consequently facilitate the learning of their pupils. However, there are occasions when, in order to fulfil these functions they need to ensure that children are receptive to what the teacher is saying in order to learn. In some instances this is problematic if pupils resort to potentially disruptive behaviour. Arguably, such behaviour is more prevalent in classrooms where pupils have ADHD and poor retentive skills. This means that they have difficulty remaining on task and remembering what has been said. In some instances teachers need to resort to sanctions to ensure that the behaviour of perpetrators is addressed and that peers are affected as little as possible. This is relevant to the study because disruptions caused by a minority can adversely affect any support put in place by the teacher. This code was originally named 'Establishing order to enhance concentration' and was closely linked with another code: 'Focusing attention'. However it was one of the later codes to emerge, by which time I was beginning to categorise into the more prominent main categories. After considering the



latter it was decided that these subordinate codes would usefully link with others under one of the three main categories: "Teacher as Mediator" because when teachers try to maintain order or they strive to focus children's attention they are simultaneously mediating between children's existing knowledge and the knowledge which they need to acquire. Instances where children were exhibiting bad behaviour were grouped and labelled "Establishing Parameters for Behaviour".

The following extract illustrates how teachers frequently needed to set limits on children's behaviour in order to continue to focus on the task in hand. The teacher was introducing a novel way of writing a story in a Creative Writing lesson. She explained that they were going to write an account of 'How to make Parents Shout' but that they would be doing this by using the format of a recipe:

T:.... This recipe always makes adults shout if your house has pale carpets. With this recipe what I mean by 'subtle touch' is sometimes over the top, like smash a window

Ch: Or shoot a sister

T: Yes well thank you, that's not what I need I want you to think of an ordinary day situation.

(Guided Writing Observation 4, p.7)

The lesson became disorderly when a child suggested that one could shoot a sister. The teacher diverted the children's attention in order to refocus on the task. This is particularly important when teaching children with attentional problems so that they remain focused on the task in hand.

This mode of support was common in Guided Writing lessons. One could suggest that this is because children are encouraged to express themselves freely in these lessons but that frequently children become overzealous when expressing their personal perspectives. Teacher mediation is an important aspect of support in a mixed ability class. All children need to remain 'in touch' with the topic being taught. In Mathematics teachers were seen to establish parameters and this tended to be related to bad behaviour. The following extract illustrates this point:

T: Ok I've got ten pieces in my strip. Ten little bits, Ok have a look at them. How many bits ? (points to a child who is playing up) right if you do that you'll have a yellow card. How many of my little pieces are white ?  
(Mathematics Observation 13, p.4)

The teacher was introducing the concept of 'fractions' through the use of coloured linking cubes. It was important that they understood that they needed to be aware of the number of cubes of each component colour in order to establish the numerator as part of the whole (the denominator). However a child was being disruptive and there was a danger that other children would be distracted. The teacher therefore resorted to the use of sanctions (a yellow card). In this instance the teacher was setting limits for behaviour. It is, however, a form of support because it ensured that the remained of the class remain focused. The teacher followed the warning with a question. In this way she successfully dealt with the potentially disruptive

behaviour of the perpetrator by questioning him about how many pieces were white. This was also a subtle means of refocusing the disruptive child.

In some instances a teacher knew a pupil well enough to intervene when a child was about to make an irrelevant remark. In the following extract from Guided Writing lesson, exemplified earlier, T.1 began to show the children the mackerel. However the child ST interrupts her. The teacher dealt with him succinctly and continued to describe the fish:

T:.....so I've brought some fish. I didn't actually catch it but when I walk to school I walk past a fishmonger. And I bought four very fresh fish. Now this is called mackerel.

ST: I've....

T: Stop interrupting. What I'd like you to do very carefully is to think of a sentence inside your head that you could describe the fish. On Friday we touched the fish didn't we.

Some of you wanted to stroke it.

(Guided Writing Observation 1, pp.2, 3)

This kind of topic introduction was akin to the instances in Mathematics when children were learning specific facts about objects, facts which the teacher knew and those which children needed to learn. The teacher felt that she needed to introduce the task with as little disruption as possible and cautioned the child ST.

But there were occasions during Guided Writing lessons when what the children already knew was important and relevant and teachers needed to extract this information. In this instance listening to children was important. In the next extract the child DB was describing a film about aliens that he

had watched with his dad. However, instead of offering a descriptive account of the film he was side tracked by what happened to his father:

DB: They become evil and do horrible things.

T: They become evil and do horrible things did they have a happy ending then?

DB: No when my dad saw it he couldn't sleep for two months (laughing)

T: Well perhaps it wasn't the sort of film you should be watching anyway DM.

(Guided Writing Observation 3, pp.5,6)

The teacher in the first instance attempted to question DB and suggested a happy ending but DB digressed. The teacher appeared to be very aware that children would be easily distracted by laughter and she established parameters for his behaviour by suggesting that he should not be watching the film. She then turned to another child DM who wished to make a contribution.

If the teacher's objective is to encourage children to air personal experiences then children need to be given opportunities to do so. However, in this instance inappropriate behaviour was addressed promptly because other children's contributions needed to be heard.

During Guided Writing lessons, teachers frequently suggested different ways of phrasing and encouraged the use of different forms of descriptive language. Of course there will be individual differences between teachers in the curricular areas. However Mathematics teachers are aware that pupils

need to learn accurate terminology and that this is used appropriately within context. In some instances if children responded in a way which was meaningful to the teacher but the phrasing was not entirely appropriate, teachers were observed to model a more appropriate form of language whilst ensuring that the child retained authorship. I discuss this now.

### **Modelling Appropriate Language**

This subcategory aptly describes a frequently used kind of support that was evident in both areas of the curriculum. It was also noted that teachers were not so much telling the children what to say, rather, and in more subtle ways, they were 'modelling appropriate language'. This was constantly renamed as transcripts were revisited. At the initial subordinate level it was called 'Teacher Talk'. However cyclic analysis of the data revealed links with 'Questioning' and Multiple Probes'. At a higher level of analysis I felt that I should question the teachers' intentions. This facilitated links with other established codes such as "Masking Failure" and "Deconstructing Reasoning Processes". "Modelling Appropriate Language" grew to become a useful terminology which described how teachers in SpLD contexts mediated between what children already know and need to know.

In line with the core theme of 'creating an effective learning environment' and that which is conducive to learning, the following paragraphs will analyse and examine interludes from lessons, where teachers exemplify appropriate ways of expressing information whether it be prescriptive terminology in Mathematics or more descriptive phrases in Guided Writing.

And so, teachers by such means fulfil their roles as mediators because they verbalise what children need to say but cannot put into words, or exemplify novel language which the curriculum demands.

Children with Specific Learning Difficulties frequently experience difficulties verbalising thoughts and using appropriate language. Teachers in these contexts offer support by helping children to organise their thoughts in order to relate stories and to offer descriptive accounts (Thomson and Gilchrist, 1997). In the following extract a teacher illustrates how it is possible to write a fictional account in the form of a recipe:

T: So I want you to listen to this recipe. You will need, and here your ingredients are, a puddle, a small spade, if not your hands will do, a younger brother or sister. Those are your ingredients, you need a puddle, some soil, a small spade, a younger brother or sister. Those are listed under Ingredients. Method (writes 'Method' and 'Ingredients' on the board) would be ummmm, wait until rain stops. Number two, ask to play outside twenty or thirty times. Number three, find a medium size puddle.  
(Guided Writing Observation 4, p.6)

Although the children were learning about procedural writing the teacher was modelling the language that the children might use for this written task. The teacher had highlighted key terms by writing these on the board e.g. 'Method' and 'Ingredients'. She also ordered possible stages through numbering. She had explicated on the board an amusing approach to procedural writing with good examples of permissible vocabulary. The

children would write their own version of events but the teacher had usefully demonstrated one example. This extract exemplified how teachers, whilst modelling appropriate language, served as mediators between what is familiar and appealing to children ( messing about in puddles) and a prescriptive format for writing a recipe.

In the following extract taken from a Mathematics lesson about Shape, T. 8 was discussing the properties of a cube with Year 7 children. The children responded accurately by stating that a cube had eight sides. However the teacher needs to introduce the appropriate term for 'corners'. She repeated their words "eight sides" with praise but ignored "eight corners" explaining that she would be introducing new Mathematical language i.e. "vertices". The teacher was thus correcting the children sympathetically but ensuring that they were learning new terminology. She was also acting as mediator as she linked what they knew to what they needed to know.

T: Six faces (writes this on the board) Now what else can you see ?

Chorus: It's got eight sides, eight corners.

T: Eight sides, wow, I'm going to introduce you to a word, mathematical language now, Vertices (writes this on the board). One vertex (on the board, one corner, lots of vertices, eight vertices, eight corners, good. What is the shape of each of our faces?

(Mathematics Observation 11, p.2)

The children needed to learn the terms 'vertex and 'vertices' and their correct usage. In this instance the teacher was not suggesting alternative

terminology, rather, she was being prescriptive because the pupils needed to be accurate about specific terms. However, in the following extract a teacher with Year 3 children was encouraging young children to respond imaginatively. We return to the 'fish' lesson once more:

T: (she holds the fish) feels slimy (assistant puts words on the board).

HM: It feels slimy.

T: So HM is right it feels slimy (stroking the fish) You could say that when I stroke the fish it feels slimy.

Chorus: It feels slimy.

T: Why do you think it looks slimy?

DE: Because it's wet

T: Because it's wet. Well the fish looks slimy too because it's wet.

(Guided Writing Observation 1, p.5)

The teacher's approach could be described as multisensory, as she stroked the fish, described how it felt and of course she would be aware that the children could smell the fish. Because they were young children, many with expressive language problems, she suggested how they could describe the fish. She suggested the word 'slimy' and this elicited the word 'wet' from DE. Here, she was demonstrating how words could be linked by mapping meaning on to action through stroking the fish. In this sense she was 'giving' them appropriate language. Mercer, (1995) describes teachers as a 'discourse guides' in a 'discourse villages' (the classrooms) where they assist pupils to develop means of thinking, talking and writing (pp. 83-84). Mercer, (1995) also believes that it is important for the teacher to take leads from the child.



There were examples of teachers re-voicing children's responses in Guided Writing lessons in order to model appropriate language thus confirming that the child's words were appropriate. The following extract was taken from a lesson described earlier when the teacher was explaining the correct format for writing a recipe.

T:.....Now what do I mean when I say we follow a certain procedure?

AH: When you've got a procedure it means you proceed in a certain way, order I think.

T : Yes, in procedural writing we follow a certain order, that's a good word to use, order, a good word to use (writes 'order' on the board).

(Guided Writing Observation 4, p.3)

She questioned the children's understanding of the term 'procedure'. AH explained that procedural writing involved following a certain order. The teacher responded by re-voicing "order" and writing this on the board, thus affirming the child's response. T. 3 supports this notion in App.16 and notes that she was confirming that 'order' was a good way of defining 'procedure'. T.3 also suggests in the questionnaire that affirmation from the teacher should elicit involvement from peers.

However, with older children a teacher was observed modelling appropriate language through more indirect means. By this I mean that she was 'setting the scene' so that the children could deduce appropriate descriptive language

from her suggestions. T.2 was discussing ways of writing a monologue with a group of Year 7 children who were going to write a speech for Odysseus:

T: Ok so basically do you remember about the tragedy, you've really got to like the character you've really got to get the audience to feel sorry for you, feeling what sort of emotions and feelings you want to create in your speech. Have a think. OK, what sort of feelings do you want the hearts of your audience to have?

Ch: Sadness so you want them to feel sad, you're sorry for him, yes

T: What about, do you want the audience to feel sorry for him. You want them to be anxious for him.

(Guided Writing Observation 2, p.4)

T. 2 was suggesting through inference : "you've really got to like the character" and "what sort of feelings do you want the audience to have?". This prompts a child to suggest "sadness.....you're sorry for him". T.2 therefore modelled language through inference.

One could argue that teachers are more likely to use this strategy with older children. It is interesting to note that teachers tended not to write on the board during 'Speaking and Listening' sessions. However one might see more evidence of this at the onset of subsequent writing tasks.

To summarise, teachers appear to assume the role of mediators when teaching children with SpLD. They were observed masking failure (thereby supporting the children's self esteem), deconstructing reasoning processes,

establishing parameters and modelling appropriate language. Teachers thus create effective learning environments. When a teacher masked the failure of one pupil by providing the correct answer she was informing other pupils who might be unsure and too timid to ask questions. Teachers tended to verbalise the thoughts of children with expressive language difficulties as opposed to highlighting their problems. Masking failure was a strategy used more frequently by Mathematics teachers than Guided Writing teachers. This may be because Mathematics is more precise but that children's responses in Guided Writing were more acceptable because individual descriptive contributions were encouraged.

Deconstructing reasoning processes was seen as an important aspect of the teachers' mediational strategies. Teachers were observed 'holding information' and filling in gaps in children's understanding. They verbalised solutions and thought processes and exemplified through demonstration, particularly in Mathematics where children needed to have specific knowledge. Teachers offered support by suggesting a way forward so that pupils could proceed and complete tasks which would otherwise be unattainable. Teachers sometimes offered aide memoires to facilitate recall but this itself was problematic for children with poor recall skills.

Teachers frequently needed to establish parameters when children were disruptive so that learning could proceed. When children made irrelevant remarks, teachers were seen to change the subject or begin to question another child. Teachers repeated children's responses as a sign of

affirmation. This was frequently accompanied by praise. It would seem therefore that social context of learning was something that the teachers sought to control, thereby indicating its perceived importance for learning.

The final chapter will discuss the findings of this thesis in the light of previous research on scaffolding and offer an assessment of methodological issues. The research questions will be revisited and implications for further research and teaching practice will be discussed.

## **Chapter 7: General Discussion**

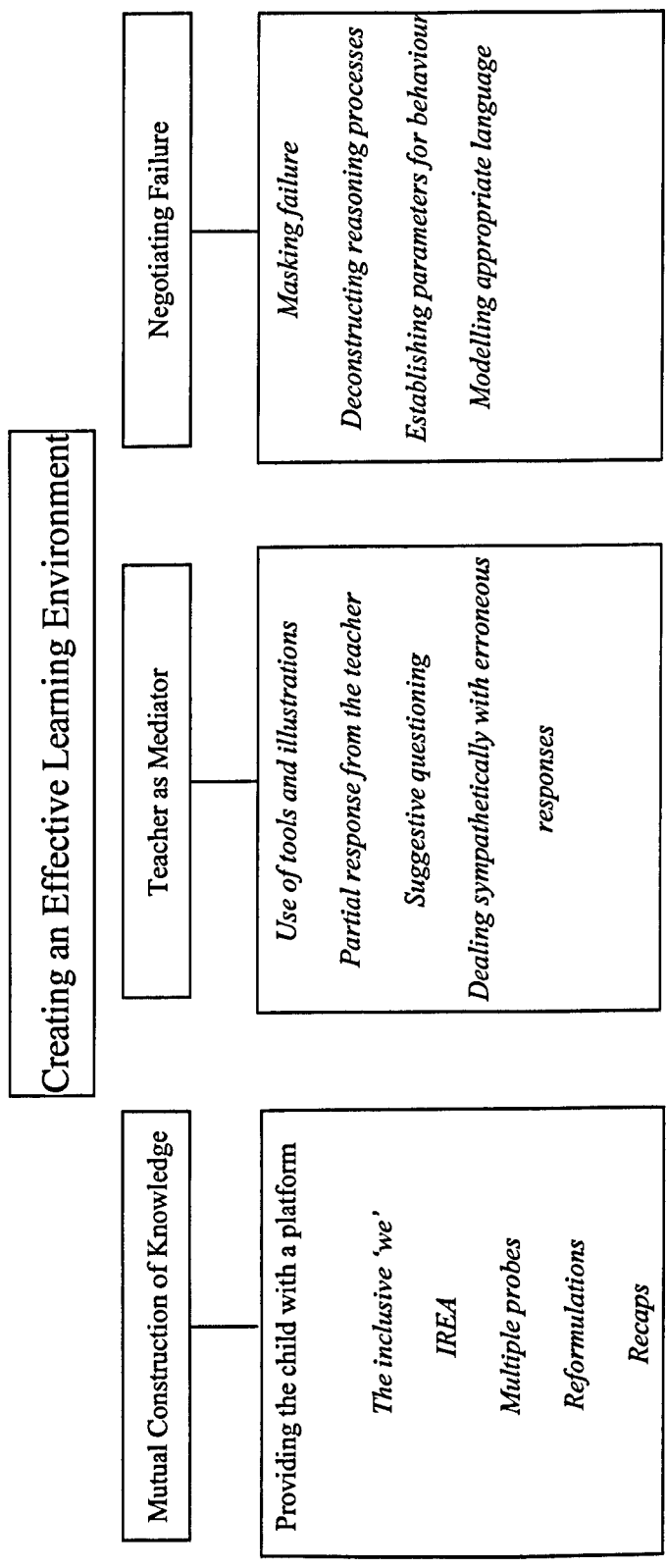
### **Theoretical Implications**

The theoretical and methodological issues arising from previous research studies on scaffolding have, in the main, involved mother-child dyads or have been interventionist in approach, many using metascripts. In these instances, researchers aimed to test predetermined hypotheses. Furthermore, classroom research into scaffolding has been mainly carried out in mainstream classrooms. Research into scaffolding in the context of SpLD was consequently limited. Against the background of such literature the conclusions drawn from the analysis of data from this thesis will be discussed in the following paragraphs.

'Creating an effective learning environment' emerged as a core theme and within this lay an explanation of what supporting children with SpLD is about. The origins of the scaffolding metaphor were linked to Wood et al's (1976) use of the metaphor as an analytic device to facilitate the understanding of support given by parents to their children in problem solving tasks. The authors emphasised that it was not so much about task completion but that the infants would understand what the tasks were about. Cazden (1979) was responsible for extending the use of the metaphor from mother-child interactions to teacher- pupil interactions in school contexts. Consistent with Vygotsky's notion of the ZPD, scaffolding was thus viewed as a useful description of the ways in which teachers support the learning of pupils. However this thesis indicates that there are other issues which need to

be considered such as what happens during instruction i.e. the broader view of how teachers support children more holistically by creating and mediating their learning environment. As such, learning is not only about attainment, understanding and knowledge but also about the social processes that contribute to it and mediate it. In this way this thesis resonates more with the views of Mercer and Vygotsky as opposed to Wood et al because it is concerned with the nature of the social processes which are involved during instruction. One could conclude that classroom scaffolding has two elements : the social context of the classroom and the curriculum. These are inextricably entwined and constitute a creative learning environment. Figure 7.1 usefully illustrates these processes and summarises the support strategies that this thesis argues are involved in supporting children with SpLD.

Figure 1: Constituents of an Effective Learning Environment



'Creating an effective learning environment' consists of three key aspects: 'mutual construction of knowledge', 'negotiating failure' and 'teacher as mediator'. As highlighted in Chapter 4, the 'mutual construction of knowledge' was illustrated in instances where the teachers used 'inclusive we' to signal inclusion through 'multiple probes', 'reformulations' and 'recaps'. Teachers were also observed 'providing a child with a platform'. This was a useful strategy because children were encouraged to speak freely in front of peers and were praised for their contributions by their teachers, thus enhancing self esteem.

In Chapter 5, teachers were observed 'negotiating failure' through the 'use of tools', 'partial responses' by the teachers, 'suggestive questioning' and 'dealing sympathetically with erroneous responses'. Chapter 6 highlighted teachers' roles as mediators whilst 'creating an effective learning environment' for children with SpLD. They did this by 'masking failure', 'deconstructing reasoning processes' in order to establish what children already knew, 'establishing parameters for behaviour' and by 'modelling appropriate language'. However, important differences in these elements emerged between the two curricular areas. These were described in Chapters 4, 5 and 6 and are summarised in the following section.

### **Differences between Mathematics and Guided Writing Lessons**

Hobsbaum, Peters and Sylvas, (1996) suggested that the nature of scaffolding is variable and unpredictable depending on the subject. The researchers' views are supported in this thesis where differences between the nature of support given



in Mathematics and Guided Writing emerged. In Mathematics for example, children were encouraged to relate directly to Mathematical terminology whereas in Guided Writing teachers tended to elicit idiosyncratic accounts from children which were based on personal experiences. Rogoff's (1993) study relating to scaffolding had not addressed issues such as scaffolding being subject dependent.

Under the sub-theme 'Mutual Construction of Knowledge' teachers were observed giving children a platform from which they could speak freely or given 'honoured voice' (Boice 1994) in both areas of the curriculum. However in Mathematics pupils were encouraged to relate directly to Mathematical terminology whereas in Guided Writing teachers tended to elicit idiosyncratic accounts from children which were based on personal experiences. The inclusive 'we' was also evident in both curricular areas but in some Mathematics lessons it implied apprenticeship - "we know something that you do not know" when new terminology was introduced.

Initiation, response, endorsement and amplification strategies were evident in both curricular areas but again the differences between the support strategies evident in Mathematics and Guided Writing were linked to the differences in the nature of what was being taught. In Guided Writing teachers tended to build on the children's own interpretation of events, but in Mathematics, specific terminology was targeted and the teaching strategies were more prescriptive. Guided Writing teachers' pedagogic approaches therefore tended to support

Vygotsky's (1978) beliefs that 'effective learning' was the consequence of shared experiences in the ZPD.

Whilst creating an effective learning environment teachers were observed 'negotiating failure' in both curricular areas. In some instances this was done through the use of tools which involved using concrete aids, but in Mathematics erroneous responses from pupils were frequently avoided through manual gesticulations and charts. It would seem that in Guided Writing, failure appears less likely because the children were encouraged to respond creatively. This may account for the fact that the use of tools was not noted in Guided Writing. Dealing sympathetically with erroneous responses by teachers was observed in both contexts but in Guided Writing, children's responses were more likely to be 'reformulated' in such a way that children were made to feel that they were on the right track anyway. However, in Mathematics questions contained probes which related directly to Mathematical terminology or concepts. It is interesting to note that 'negotiating failure' was not addressed by earlier researchers such as Wood and Middleton, (1978). However, this was an intervention study during which certain teaching approaches delivered trained adults were monitored. 'Negotiating failure' was therefore not 'found' as a constituent of effective tuition in their study.

The third main theme was 'Teacher as Mediator'. This mediation emerged as an essential characteristic of 'creating an effective environment for learning'.

Masking Failure was more evident in Mathematics than in Guided Writing

lessons. This suggests that because Mathematics teachers target specific concepts and the accurate use of terminology the children are more likely to make erroneous responses because the teachers' versions are, in the main, the 'acceptable' versions. Teachers were also observed mediating between appropriate language which children needed to express and learn but again, the motives for 'modelling appropriate language' were linked to the nature of the curricular context and children's specific learning difficulties such as expressive language problems, incorrect use of verbs, tense and superlatives such as 'the bestest car'. In Mathematics, teachers in some instances became children's voices when pupils could only explain through gesticulations. This provided a unique opportunity for teachers to model appropriate Mathematical terminology but at the same time they made children with expressive language difficulties feel that what they were trying to convey was accurate. This supports Mercer's (1995) views that the learning of accurate terminology – educated discourse- is an essential part of the Mathematics curriculum. It also supports Vygotsky's belief that if teachers were sensitive to the cause of children's learning difficulties, they could bring to the fore potentials in children which were previously marred by their learning difficulties.

To summarise, it appears that scaffolding is 'situated' in the subject in which it is encountered, therefore effective teachers will tend to alter their strategies as needs arise in the different curricular areas. This supports Vygotsky's (1978) view that it was important to view SpLD as being associated with different modes of teaching and learning. Vygotsky argued that if teachers were sensitive

to the cause of children's learning difficulties they could bring to the fore potentials in children which were previously marred by their difficulties.

### **Comparing Previous Research Findings with the Theory of 'Providing an Effective Learning Environment'**

On revisiting previous research literature on scaffolding some key elements and ideas emerged as being supported by this thesis. However, some strategies were distinctive to this thesis.

Mercer and Edwards (1987) mooted that shared activity and shared conceptions carried out by language were the pivotal constituents of successful scaffolding. This was evident in 'the mutual construction of knowledge' during classroom interactions, as teachers 'provided a platform' thus encouraging children to speak freely. This category became an extension of Oldfather's (1993) notion of 'honoured voice'. However it also provided opportunities to praise children and to boost self esteem (Mewborn and Huberty, 1999). Teachers appeared to reformulate children's responses and to model appropriate language whilst acting as mediators between children and the knowledge to be learnt. These concepts are linked to Edwards and Mercer's (1987) notions of 'paraphrasing ' but the category 'Reformulations' was distinctive in terms of effective strategies because it provided opportunities for the teachers to present a child's contribution in a more 'acceptable' form whilst allowing a child to retain ownership of the original ideas.

'Modelling Appropriate Language' emerged as another distinctive strategy in the thesis, particularly with children who had severe expressive language difficulty. Another distinctive strategy which emerged from the thesis was 'Use of Tools and Illustrations'. This was linked to Bruner's (1985) notion of teachers 'modelling' or 'demonstrating' as they lure children towards learning. However, it was distinctive from these notions because the 'tools' were intended to give children the support they needed to complete the task 'unassisted', rather than simply be an incentive to engage in learning. There were instances of this mode of support in both curricular areas. Children with ADHD appeared forgetful and easily distracted. In such instances teachers offered support in the form of charts and illustrations.

Although Wood's prolific research into scaffolding supports the notion of contingency his studies did not relate to classroom situations. Consequently they tell us little about how teachers in SpLD contexts exhibit contingent behaviour in specific instances such as with children with ADHD. However Wood and Wood (1996) did stress the importance of task induction: a 'sine non qua' for effective learning. This notion was supported in this thesis when teachers used 'Inclusive We' (Edwards and Mercer, 1987) to introduce new material whilst linking it to previous work. The research data revealed how teachers' use of this strategy was a useful strategy for children with poor recall skills because they could be informed without being questioned.

'Suggestive Questioning', 'Partial Responses' and 'Multiple Probes' were further examples of strategies which were similar to those found in established research ( Edwards and Mercer, 1987), but that were realised in a way that was distinctive to this thesis. All three strategies are linked because teachers needed to support pupils and to help them to give accurate responses. 'Suggestive Questioning' emerged as an effective means of accessing children's current understanding because teachers were thus working within children's 'Region of Sensitivity to Instruction' (Pratt et al 1992). This support helped children to attend, and it meant that the child prone to misbehave was encouraged to attend because he or she was actively involved in what was going on. However Pratt et al's conclusions were based on studies of mothers and children and findings from such studies do not connote with situations in SpLD classrooms where children have differing learning difficulties. Data from this thesis shows that teachers attempt to establish what children already know and understand through multiple probes or by providing a platform for oral expression. They then build on what children know through endorsement and amplification.

Butler (1998) and Hoogsteder, Maier and Elbers, (1996) had criticised the scaffolding metaphor because it evoked an image of a child (the edifice) as passively allowing improvement to be carried out as opposed to the child contributing to his or her own learning through interaction. The findings of this thesis support these views in part. Children in Mathematics lessons did appear to be passive learners on the whole but in Guided Writing - in situations where they were encouraged to give anecdotal accounts - children emerged as active

participants. This provided opportunities for the teacher to model more appropriate language or to make partial responses for more reticent children. One could argue that being more 'passive' in Mathematics is problematic for children's learning because it could indicate that children lack the confidence to question what is being taught, or it could mean that children's perception of Mathematics is just about 'absorbing' information. This notion would tend to support the views of Nunes and Bryant (2004) who distinguish between 'generative' and 'reproductive' learning. For example, a child is engaged in 'generative' learning if he or she understands a system sufficiently to generate new, untaught Mathematical concepts such as  $9-3 = 6$ , then he or she will also deduce that  $6+3 = 9$  without assistance. However, the researchers concluded that if pupils just reproduce concepts, then this was 'reproductive' learning.

Wood et al's (1976) notion of 'contingency' was validated within the theme of 'creating an effective learning environment' because the support strategies which emerged in the data analysis illustrated how teachers 'think on their feet' depending on situations as they presented themselves. This notion was clearly exemplified by the teacher who intervened when a child experienced difficulty when counting in tens backwards in a Mathematics lesson. She repeated his last two correct numbers thus prompting him to continue. In this instance she 'held' the numbers thus enabling him to continue in sequence. This is a further example of how a 'grounded' approach to data analysis reveals the exact nature of teachers' contingent actions in SpLD contexts - something that has been absent in many accounts of contingency to date. Other similar instances were

observed during the mutual construction of knowledge, negotiating failure and teacher mediation because in most recorded instances teachers were behaving contingently to children's need at that time, whether it be in the form of partial responses, masking failure, modelling appropriate language or multiple probes.

Research by Fler (1992) had reported instances of negative scaffolding in Science lessons. Science, like Mathematics is an 'exact' area and a teacher participating in this research was observed pointing to the right answer on the board in a Mathematics lesson. However this mode of support was described as 'use of tools' within the sub theme 'Negotiating Failure' and was therefore recast as an 'appropriate' form of support in the context of SpLD. If a child needed to learn a specific term the teacher pointed to the right answer on the board so that a child would say the correct answer. This would 'mask' the child's lack of knowledge and prevent exposure in front of peers. This became a further distinctive strategy in this thesis : 'Masking Failure'. But there was an instance in a Guided Writing when a teacher 'gave' the term 'cooking' as being a more appropriate way of describing 'how you make food'. This example supports Mercer's (1995) notion of terminology deemed to have 'educational significance' (p. 32). However one needs to question whether 'masking' is potentially problematic for promoting children's understanding of the task and whether in these instances, there exists a conflict between the social and cognitive processes involved in scaffolding. The writer's thesis indicates these conflicts because it considered cognitive activity in a socio- cultural setting as postulated by Vygotsky.



Research by Edwards and Mercer (1987) on communicational discourse had revealed IRF modes of scaffolding. However, this thesis revealed an additional facet to this concept. Teachers appeared to elaborate further on feedback, the strategy therefore was named 'Initiation Response Elaboration Amplification'. The latter was deemed a more appropriate means of describing support which was more tailored for the needs of children with SpLD, particularly when children had expressive language difficulties. Furthermore, 'elaboration and amplification' provided a 'richer' and more appropriate description of 'feedback', because teachers were observed to elaborate on children's responses. In this way they were promoting self esteem and indicating that the children's responses were deemed sufficiently important to be 'amplified' publicly by the teachers during a lesson. However, one could suggest that 'elaboration' is the critical 'cognitive' element for children with SpLD, whereas 'amplification' is about 'social' support within the context of the classroom.

One could argue that a 'grounded' approach to data analysis exposes the richness of interactive processes between teachers and pupils. Furthermore it exemplifies how 'elaboration' and 'amplification' is closely linked to and dependent on a child's specific learning difficulty. This was aptly exemplified, when the child with expressive language difficulties tried to describe the fresh mackerel brought to a Guided Writing lesson by the teacher. The child knew what she wanted to say but succeeded only when the teacher's contingent action - repeating the child's initial response and questioning that response - allowed

the child to give an accurate description of the fish. So although the notion of contingency evolved from previous studies, grounded analysis of data from this thesis has provided clear illustrations of support strategies evident in SpLD classrooms. One could conclude that a grounded analysis allowed the raw data to be examined in such a way that it served to define contingency in its many forms in SpLD contexts. It thereby illustrates its highly variable and contextually situated nature.

There was also evidence of 'situational diagnosis' (Stone 1998, p.348). Stone did not suggest how this was done but the grounded approach to data analysis revealed how teachers mediated between what children knew and needed to know. This became another distinctive strategy in the data and was called 'Deconstructing Reasoning Processes'. This supports Leseman and Sijtsling's (1996) criticism of Wood et al's (1996) notion of contingency because it did not consider that the learner's personal conceptualisations of a task might differ from that of a tutor. Leseman et al argued that the teachers' views might be supplanted on the learner and as such would be a 'transmission' notion of learning as opposed to being contingent teaching. Data from this thesis revealed that teachers did attempt to 'get inside children's thinking' in order to build on what they knew. This was also evident when teachers 'Provided a Platform' for children to speak freely and also through 'Multiple Probes'. These strategies were also a useful means of attaining intersubjectivity within 'effective learning environments'. Arguably, if teachers can establish what children know and need

to know, then children's failure can be more easily predicted and 'masked' but any emergent failure can be dealt with sympathetically.

Emergent data supported Rogoff's (1993) views regarding successful scaffolding as a means of linking existing knowledge with the demands of new tasks. There was evidence of this in both curricular areas in this thesis. Rogoff however does not detail or categorise teacher strategies.

So by scrutinising verbal interactions between teachers and pupils teacher motives and intentions were 'exposed', that is what teachers say to children and why they do so. This thesis therefore does not merely support concepts such as contingency and RSIs for example, it has provided evidence by citing specific examples of such support mechanisms in two curricular areas in SpLD classrooms.

There was no evidence in the data analysis to support Stone's (1998) notion of prolepsis as a form of scaffolding. Arguably children with ADHD and those with poor recall skills would be less likely to be able to anticipate what facts they are about to learn particularly if there is too much redundancy in a teacher's instruction. The writer's research study also revealed how Stone's notion of redundancy in instruction may not apply in the context of SpLD because of the language difficulties inherent in atypical children.

Data emerging from this thesis has addressed Palincsar's (1998) plea for greater understanding of how effective teachers engage in scaffolded instruction.

Although the data does not assess the effectiveness of instruction in terms of the

quality of follow up written work, it does highlight how teachers engage and motivate children and arguably this could be seen as the precursor to children's understanding.

As categories emerged the writer became increasingly aware that implicit in teachers' pedagogy was the need to maintain children's self esteem. But because it appeared to underpin all emergent teaching strategies it was decided not to have it as a named category but to leave it implicit in all modes of support.

Riddick (1996) cautions that:

"...individual differences between children (in self esteem) can be masked and it doesn't relate the individual's specific experiences to their level of self esteem... Another difficulty in researching this area is that dyslexia is a developmental disorder which changes in its manifestations over time" (p.32).

As such, manifestation in children would differ at any given time. The issue of self esteem was not discussed on participating teachers' questionnaire but one teacher in the staff room did comment informally that " ...it's just what you do.... A child's got to have the 'feel good factor". Although self esteem can be evaluated by questionnaires such as 'LAWSEQ', (Lawrence, 1985) 'real life' evidence to date is mostly anecdotal. Riddick (1996) suggests that the development of self esteem is the consequence of:

"...acceptance, competence and worth... these are learnt through social interaction firstly within the family, then school ...This is seen as an interactional process with the

child influencing the environment and the environment  
influencing the child." (pp.34-5).

These notions connote with the main emergent category: 'Creating an effective learning environment' and are arguably endorsed by the support strategies discussed in earlier chapters, particularly in instances where teachers appeared to 'negotiate failure' or offer praise even when considerable assistance was given. This thesis has demonstrated that there are two strands to 'scaffolding'. It is often directive because it attempts to direct attention and build knowledge with the children, but there is also a social strand that focuses on giving children the behavioural and emotional support and guidance they need, in order to engage with classroom activity without feeling undermined.

To conclude this section, the distinctive strategies which emerged from this thesis were: IREAs, Multiple Probes, Use of Tools, Partial Response from the Teacher, Suggestive Questioning, Dealing Sympathetically with Erroneous Responses, Masking Failure, Deconstructing Reasoning Processes and Establishing Parameters for Behaviour. It would be unrealistic to say that these are strategies which only occur in SpLD contexts, but it is tempting to suppose that although most teachers in mainstream contexts strive to use these strategies, greater class numbers and absence of classroom support might prevent them from doing so. Equally, there were a good number of strategies observed that were broadly similar to those noted by researchers of scaffolding in either mainstream or mother-child contexts such as: Modelling Tasks (Wood, Bruner and Ross, 1976; IRFs, Reconstructive Recaps and Paraphrasing,

(Edwards and Mercer, (1987) and IREs (Mehan, 1979). However, one might suggest that the named strategies which were distinctive to this thesis differ as they are linked to the nature of certain learning difficulties such as ADHD, speech deficits, poor short term memory and low self esteem.

### Should the 'Scaffolding' Metaphor be Redefined for the Context of SpLD?

So how useful is the adoption of the scaffolding metaphor in the field of SpLD?

There was evidence of the existence of a support framework implicit in teachers' approaches. There was also evidence of Wood et al's (1996) notion of contingency but not only did they give more or less help as required, new instruction tended to be tailored to the child's specific needs. For example, a teacher was observed modelling appropriate language for a child with expressive language difficulties. One could therefore argue that contingency existed in the form of teachers 'thinking on their feet', such as in recapping, modelling appropriate language, suggestive questioning, reformulation, partial responses and use of tools. If some aspects of such strategies failed, then other strategies came to the fore in the form of dealing sympathetically with erroneous responses or masking failure. In this way, teachers were scaffolding or supporting children intuitively as situations arose.

Consequently, one could argue that the rigid notion of 'Scaffolding' as in the context of constructing an edifice, which is removed on completion, does not offer an explicit or rich description of classroom interaction in the context of SpLD because of the changing dynamics and the complex nature of each child's

learning difficulties. There are diverse support strategies at work. Moreover, there is a need to further investigate what 'effective' refers to in 'effective learning environment'. 'Effectiveness' may depend on how children become receptive to instruction i.e. their perception of their ability to understand what is being taught, the appropriateness of what they are expected to learn and of course, how they respond when asked for written responses after concepts have been taught. Arguably, 'effectiveness' is not necessarily always in the control of the adult tutor.

The nature of SpLD is such that one could argue that Donahue et al's (1998) metaphor of a "flying buttress" is a better analogy than 'scaffolding' in this field because it suggests that support from the teacher becomes an integral part of the child's learning. However if a metaphor is necessary at all for the teaching of children with SpLD perhaps one could think in terms of 'tiling and grouting'. The child's learning would remain as the central edifice but that new tiles (added knowledge) could be added and 'grouted' (the filling of gaps - the 'jointly erected knowledge' - in children's learning). If we need a metaphor then it should allow for the necessary continuous and changing nature of teaching support associated with Specific Learning Difficulties. Furthermore the 'edifice' might not be so much the child's learning but the child's self esteem which needs to be maintained constantly in order that learning takes place at all. If a child does not possess the 'feel good' factor then he or she is unlikely to be a receptive, learning child.

One could suggest that 'scaffolding' is an interpersonal support system.

Scaffolding is not so much about the edifice but about enabling the edifice to be erected. Scaffolding is also about preparing children and providing support on a purely interpersonal level within an effective learning environment. In this way, scaffolding involves the merging of social and cognitive aspects of learning.

### **Methodological Implications**

#### **a) Evaluating a Grounded Approach to Analysis as a Method**

Previous attempts to capture 'scaffolding' have been problematic because in the main researchers have approached the research arena with preconceived notions in the form of metascripts and coding schemes. Because coding schemes involve noting frequencies of preconceived types of responses they ignored the richness, meaning and intentions implicit within pedagogical approaches.

Arguably these issues are addressed by combining observation with a grounded approach to analysing the data. The times and sequences of observations in the two curricular areas were governed by ideas and theories which evolved from previous observations. If I felt that it would be beneficial to enter more deeply into certain aspects of teacher support in a specific curricular area then I would ask a teacher's permission to do this. After amassing a plethora of strategies I was able to identify a common thread which wove through each strategy and this became my core theme: Creating an Effective Learning Environment. I was stimulated through a grounded approach to analysis to question why teachers did or said things in certain contexts and how pupils reacted. This enabled me to categorise further themes.



The primary advantage of carrying out observational research is its 'directness' with participants and emergent data. The camera records what is going on and makes no value judgements, although the writer's interpretation of the videos does, of course.

There were of course difficulties related to these research methods. Filming was time consuming and because subsequent observations were dependent on what had emerged from previous observations I could not plan ahead. There were also occasions when I needed to ask participating teachers if I could observe the next 'introductory' lessons in the light of what had emerged from previous observations. In hindsight, I feel that my research would have been richer had I observed lessons in related curricular areas. It would have been interesting to establish whether teachers' support strategies were similar in Mathematics and Science because of the exact and conceptual nature of these areas. Similarly, teaching strategies used in Guided Writing and Art may have been similar because of the creative nature of these subjects. Although two participating teachers were observed in both curricular areas it would have been interesting to make further observations with a greater number of teachers in order to establish possible individual differences. The writer acknowledges the fact that it was difficult to adopt a 'strict' grounded approach to analysis, and so this was a serious limitation of the adopted approach. However, the 'grounded' approach still yielded a distinctive analysis of the data and broadened the resulting conceptualisation of 'scaffolding' (e.g. failure and self esteem).

### b) Ethical issues

I chose not to be present during filming for reasons of obtrusiveness and the fact that many children would have been distracted. However, had I been present I might have noted elements which the camera could not record such as the facial expressions and the behaviour of children who were not being addressed by the teacher. I did leave the camera in the classroom before the onset of observations in order to get the children used to its presence. But then the problem of ethics arises - one is filming children who 'forget' that they are participating in a research study. This was partly overcome when I later explained that I was trying to record conversations between them and their teacher and to see how Mathematics lessons are different from Guided Writing lessons. They were happy to participate given this knowledge of what it was about.

Of course one cannot be sure that the observed are unaware or not and so one cannot be certain whether the recorded interactions are 'natural'. But by the same token there is no way of establishing the nature of interactions without recording what went on. There were also ethical difficulties of evaluating the teaching of colleagues who were participating in the research study. I assured my colleagues that names would not be divulged but that I was trying to establish what went on in typical classrooms in SpLD contexts. I did however debrief the teachers informally when observations were complete. I also assured them that they could withdraw if they were unhappy with their participation. However, my colleagues remained participants throughout the research.

### c) Triangulation of Qualitative Data

The teachers' responses on the triangulation questionnaires supported some of my thinking: they worked contingently with the children and they were aware of each child's learning difficulty. However it had been difficult to word the questions in such a way that one was not influencing their responses. With hindsight, better triangulation data could have been obtained after the observations had taken place if the questions had been more closely related to the research questions. I did pose the question as to how they felt their approach might differ in Guided Writing and Mathematics. However I subsequently felt that I should have been more specific such as probing as to whether they felt that strategies were linked to what they were teaching. I also feel that I could have questioned the participating teachers about their views on the importance of maintaining self esteem in children. However in both instances one could suggest that some questions would in some way alert colleagues to my interpretation of data before debriefing or that I would be *leading* their thinking.

On reflection I still feel that observation was the most effective means of investigating classroom interactions as opposed to carrying out research of a more experimental nature because the objective was to establish what strategies teachers deploy in SpLD classrooms - what goes on, what teachers say and why.

## **Practical Implications**

This thesis emphasised the need for teachers to Create Effective Learning Environments. This comprised three key aspects:

- 1) The mutual construction of knowledge, which included using the inclusive we, IREAs, multiple probes, reformulations and recaps.
- 2) Teacher as mediator i.e. use of tools, partial responses, suggestive questioning and dealing sympathetically with erroneous responses.
- 3) Negotiating failure i.e by masking failure, deconstructing reasoning processes, establishing parameters for behaviour and by modelling appropriate language.

This thesis indicated the need to maintain pupil self esteem was implicit in most teachers' approaches, such as when teachers 'masked failure' by 'guiding' children towards accurate responses. This was done in some instances by providing helpful charts as opposed to indicating errors overtly. Such strategies allowed children to retain a sense of achievement and a feeling of self worth. This thesis also indicated the importance of encouraging children with SpLD to air their views. This provided opportunities for teachers to praise their contributions. If responses were inaccurate teachers appeared to respond in a supportive and caring manner.

The notion of the three constituents which comprise and contribute to Creating an Effective Learning Environment could usefully be incorporated into both

ITT (Initial Teacher Training) and PD ( Personal Development) courses through the production of guidelines for good practice. Such guidelines have been produced by the author and will form the basis of INSET training days.

The teacher guidance produced was as follows:

- Use 'inclusive we' to remind children what they should remember from the previous lesson. This is important for children with SpLD because it is important that they should not be 'exposed' in front of others if they are likely to give wrong answers.
- If you think a child doesn't know the answers, then engage in gentle probing so that you can say something positive en route about his/her response but also build on that. Children will then feel that it was their idea in the first place. In this way they can be updated without being 'exposed'. These notions stem from 'Suggestive Questioning' in this thesis.
- Try to create opportunities where children can stand up and tell their peers what they know so that they can be praised. This will encourage others to follow suite. Make sure that the child has the appropriate knowledge. This was illustrated in 'Providing a Child with a Platform'
- Children with speech impediments should also be encouraged to speak publicly because the teacher can reformulate the child's version. The child should then be praised. This also gives teachers opportunities to 'model appropriate language' and to 'mask failure', which if exposed, may result in the lowering of self esteem.

- Teachers can also begin to verbalise answers if children are likely to experience difficulty. This notion stems from the category 'Partial response from the Teacher'.
- Teachers and pupils can recap information 'together'. The teacher would remind the children about what they had done in a previous lesson as was demonstrated in the category 'Recaps'. In this way pupils are given facts which they may have forgotten.
- Try to give children a platform for speaking, then praise and reward. This frequently encourages others to follow suit.
- Deal sympathetically with wrong answers.
- Instil in children the feeling that it is alright to ask questions. Encourage children to put up hands and say that it this an intelligent strategy as opposed to doing nothing when they could be fact finding. Say that it is usually intelligent children who ask questions, because it is pretty dumb to sit there and wonder what the teacher is talking about. This notion stems from the category 'Dealing Sympathetically with Erroneous Responses'.
- Have a tick chart on the board so they can see how 'good' they are getting but reward for sensible, relevant questions only. The group could be split into two teams and team points recorded on the board. This is linked to the category 'Use of Tools and Illustrations'.

Further research could link levels of self esteem to the effectiveness of a teacher's approach. One could determine what children had learnt through pre

and post intervention assessments, through interviews and task performance, attainment scores and SAT results. One could compare their responses with their ratings of the lessons. This data could be linked to which strategies teachers used in the lessons. These could be identified through a coding scheme. A more formal evaluation of strategy use and children's attainment could evaluate the success of a teacher's proposed approach to teaching children with SpLD. These approaches could be compared with other children with SpLD who do not receive such an intervention.

### **Conclusions**

The study has explored ways in which specially trained teachers in a special school for children with specific learning difficulties supported the learning of pupils in this context. The utility of the 'scaffolding' metaphor was questioned because the notion of 'scaffolding' per se implies that support is removed when learning is achieved. However, because of the diverse nature of learning difficulties such as ADHD, Dyslexia and poor recall skills, teachers' support is ongoing. The study also established that there were qualitative differences in teachers' strategies observed in Mathematics and Guided Writing during 'Speaking and Listening' when new tasks were introduced. It was concluded that the metaphor which best captured the sense of shared competence and permanent support at a basic level remains open to discussion. However one could conclude that this thesis views learning as broader than just the immediate relationship between teacher and child. Learning is also about a child's history, needs, the social context of the classroom and curricula. One

could therefore suggest that a metaphor of a 'dual prop' would represent the social and the cognitive aspects of support in SpLD contexts because they are inextricably entwined in a symbiotic relationship.

The study highlighted some interesting ways in which teachers engage children and foster learning effectively. A qualitative analysis of the data from classroom observations revealed that teachers supported children by 'creating and effective learning environment'. This was achieved in three main ways: the mutual construction of knowledge, the negotiation of failure and teacher mediation of the learning environment.

Practical implications were suggested. These were primarily concerned with maintaining pupil self esteem and included offering rewards for correct answers and ensuring that pupils did not experience failure. This was done by reminders of information presented in previous lessons before questioning. Children were then more likely to give accurate responses, thus presenting opportunities for teachers to praise.



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# **Appendices**

## Appendix A: British Psychological Society Ethical Guidelines

### A Code of Conduct for Psychologists

Under the terms of its Royal Charter, the Society is required to 'maintain a code of conduct'. In 1985 the Society adopted a code of conduct prior to the introduction of the Register of Chartered Psychologists with provision for an Investigatory Committee and Disciplinary Board to consider complaints of professional misconduct against members of the Society. In the light of experience dealing with several dozen allegations of misconduct these committees recommended some amendments to the code. After extensive consultations the following revised Code of Conduct was approved by the Council in February 1993 and adopted forthwith.

Statute 15 (12) states that a Disciplinary Committee shall be 'guided by the Code of Conduct, but that mention or lack of mention in the Code of Conduct of a particular act or omission shall not be taken as conclusive on any question of professional conduct'. Nevertheless, the Code sets out certain minimum standards for conduct with which psychologists are required to comply. However, the Code is also supplemented by several other guidelines and statements on matters of ethics and conduct published by the Society and its sub-systems. These frequently set out standards of good practice at which psychologists should aim. Some of these other statements give detailed guidance on matters such as advertising and descriptions, research with human or animal participants and some are relevant to specific fields of professional practice or concern the special provisions of law and practice on such matters as confidentiality and the disclosure of information. Members and contributors of the Society, many of whom will be Chartered Psychologists, must also take account of these further guidelines issued from time to time by the Society and its sub-systems, but especially those relevant to their own specialist fields of practice or research.

#### 1. General

In all their work psychologists shall conduct themselves in a manner that does not bring into disrepute the discipline and the profession of psychology. They shall value integrity, impartiality and respect for persons and evidence and shall seek to establish the highest ethical standards in their work. Because of their concern for valid evidence, they shall ensure that research is carried out in keeping with the highest standards of scientific integrity. Taking account of their obligations under the law, they shall hold the interest and welfare of those in receipt of their services to be paramount at all times and ensure that the interests of participants in research are safeguarded.

#### 2. Competence

Psychologists shall endeavour to maintain and develop their professional competence, to recognise and work within its limits, and to identify and ameliorate factors which restrict it. Specifically they shall: refrain from laying claim, directly or indirectly, to psychological qualifications or affiliations they do not possess, from claiming competence in any particular area of psychology in which they have not established their competence, and from claiming characteristics or capabilities for themselves or others which they do not possess; recognise the boundaries of their own competence and not attempt to practise any form of psychology for which they do not have an appropriate preparation or, where applicable, specialist qualification; take all reasonable steps to ensure that their qualifications, capabilities or views are not misrepresented by others, and to correct any such misrepresentations; if requested to provide psychological services, and where the services they judge to be appropriate are outside their personal competence, give every reasonable assistance towards obtaining those services from others who are appropriately qualified to provide them; take all reasonable steps to ensure that those working under their direct supervision comply with each of the foregoing, in particular that they recognise the limits of their competence and do not attempt to practise beyond them.

#### 3. Obtaining consent

Psychologists shall normally carry out investigations or interventions only with the valid consent of participants, having taken all reasonable steps to ensure that they have adequately understood the nature of the investigation or intervention and its anticipated consequences.

Specifically they shall:

always consult experienced professional colleagues when considering withholding information about an investigatory procedure, and withhold information only when it is necessary in the interests of the objectivity of the investigatory procedure or of future professional practice;

where it is necessary not to give full information in advance to those participating in an investigation, provide such full information retrospectively about the aims, rationale and outcomes of the procedure as far as it is consistent with a concern for the welfare of the participants;

refrain from making exaggerated, sensational and unjustifiable claims for the effectiveness of their methods and products, from advertising services or products in a way likely to encourage unrealistic expectations about the effectiveness of the services or products offered, or from misleading those to whom services are offered about the nature and likely consequences of any interventions to be undertaken;

normally obtain the consent of those to whom interventions are offered, taking all reasonable steps to ensure that the consent obtained is valid, except when the intervention is made compulsorily in accordance with the provisions and safeguards of the relevant legislation;

recognise and uphold the rights of those whose capacity to give valid consent to interventions may be diminished including the young, those with learning disabilities, the elderly, those in the care of an institution or detained under the provisions of the law;

where interventions are offered to those in no position to give valid consent, after consulting with experienced professional colleagues, establish who has legal authority to give consent and seek consent from that person or those persons;

recognise and uphold the rights of recipients of services to withdraw consent to interventions or other professional procedures after they have commenced and terminate or recommend alternative services when there is evidence that those in receipt of their services are deriving no benefit from them.

#### **4. Confidentiality**

Psychologists shall maintain adequate records, but they shall take all reasonable steps to preserve the confidentiality of information acquired through their professional practice or research and to protect the privacy of individuals or organisations about whom information is collected or held. In general, and subject to the requirements of law, they shall take care to prevent the identity of individuals, organisations or participants in research being revealed, deliberately or inadvertently, without their expressed permission.

Specifically they shall:

endeavour to communicate information obtained through research or practice in ways which do not permit the identification of individuals or organisations;

convey personally identifiable information obtained in the course of professional work to others, only with the expressed permission of those who would be identified, (subject always to the best interests of recipients of services or participants in research and subject to the requirements of law and agreed working practices) except that when working in a team or with collaborators, they shall endeavour to make clear to recipients of services or participants in research, the extent to which personally identifiable information may be shared between colleagues or others within a group receiving the services;

in exceptional circumstances, where there is sufficient evidence to raise serious concern about the safety or interests of recipients of services, or about others who may be threatened by the recipient's behaviour, take such steps as are judged necessary to inform appropriate third parties without prior consent after first consulting an experienced and disinterested colleague, unless the delay caused by seeking this advice would involve a significant risk to life or health;

take all reasonable steps to ensure that records over which they have control remain personally identifiable only as long as is necessary in the interests of those to whom they refer (or, exceptionally, to the general development and provision of psychological services), and to render anonymous any records under their control that no longer need to be personally identifiable for the above purposes;

only make audio, video, or photographic recordings of recipients of services or participants in research (with the exception of recordings of public behaviour) with the expressed agreement of those being recorded both to the recording being made and to the subsequent conditions of access to it;

take all reasonable steps to safeguard the security of any records they make, including those held on computer, and, where they have limited control over access to records they make, exercise discretion over the information entered on the records;

take all reasonable steps to ensure that colleagues, staff and trainees with whom they work understand and respect the need for confidentiality regarding any information obtained.

#### **5. Personal conduct**

Psychologists shall conduct themselves in their professional activities in a way that does not damage the interest of the recipients of their services or participants in their research and does not inappropriately undermine public confidence in their ability or that of other psychologists and members of other professions to carry out their professional duties.

Specifically they shall:

refrain from improper conduct in their work as psychologists that would be likely to be detrimental to the interests of recipients of their services or participants in their research;

neither attempt to secure or to accept from those receiving their service any significant financial or material benefit beyond that which has been contractually agreed, nor to secure directly from them any such benefit for services which are already rewarded by salary;

not exploit any relationship of influence or trust which exists between colleagues, those under their tuition, or those in receipt of their services to further the gratification of their personal desires;  
not allow their professional responsibilities or standards of practice to be diminished by considerations of religion, sex, race, age, nationality, party politics, social standing, class, self-interest or other extraneous factors;  
refrain from practice when their physical or psychological condition, as a result of for example alcohol, drugs, illness or personal stress, is such that abilities or professional judgement are seriously impaired;  
value and have respect for all relevant evidence and the limits of such evidence when giving psychological advice or expressing a professional opinion;  
value and have respect for scientific evidence and the limits of such evidence when making public statements that provide psychological information;  
refrain from claiming credit for the research and intellectual property of others and give due credit to the contributions of others in collaborative work;  
take steps to maintain adequate standards of safety in the use of all procedures and equipment used in professional practice or research;  
bring allegations of misconduct by a professional colleague to the attention of those charged with the responsibility to investigate them, doing so without malice and with no breaches of confidentiality other than those necessary to the proper investigatory processes and when the subject of allegations themselves, they shall take all reasonable steps to assist those charged with responsibility to investigate them.

**TEXT BOUND INTO**

**THE SPINE**



Mutual Construction of Knowledge App @  
Negotiating Failure  
Teacher as mediator

IN /GW Guided Writing Observation 1. 12 in group Year 3

Transcript conventions.

bold print      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials.

T: I'd like you all to come and sit in a circle on the floor. A nice circle. HB we're waiting for you please. More round towards DS. So on Friday when it was our Art lesson you did some painting, yes? I'm going to tell CH because she wasn't here.

Recap

CH: Like that one (pointing to the paintings)

T: I thought that firstly I'd show CH your paintings because they were really good. Looking at these it will help you to remember what the fish looks like. Do you remember which paint you used?

praise

AL: Water paints

T: Yes that's right water colours. Just turn to the side a bit JB so that everyone can see this is NI's, that's nice you see how he's put the colour across here and put the pattern on top of the fish. This is HM's a very try here with all the different colours that she saw. Well done HM. AL you've got a lot of lovely colours here and he's made his paint nice and watery.

guided participation

AL: There are bits on the fish.

praise  
endorsing  
repeating  
child's  
words



T: That's right SA lovely watery paint again, colour underneath and wonderful patterns on top of the fish.

SA: Yes I\*\*\*\*\*

CH: I noticed there was a bit on the fish.

T: AL he's got lots of lovely colours and he's made his paint nice and watery.

This is ST's, a good try here. He made his paint nice and watery. SA nice and watery again, colours underneath are beautiful and patterns on top of the fish.

HA a good try here nice colours.

HA: It's not very good.

T: It is good actually

\*\*\*\*\* (children talking)

NA: I like the way it's shaped.

T: Good try isn't it. It's difficult to use water paints because they're so watery.

This is a nice one here and the last one of all is DB. Beautifully watery eyes next week you'll get a chance to add to the paintings. Now when you look at paintings it's quite easy to see what they're like. You show someone the painting and they can see what you're talking about.. But if you couldn't see it and you'd have to describe it to someone in words you'd have to think carefully about what to say about the fish. eg if the person was blind or even to CH who wasn't here last week. So I've brought some fish. I didn't actually catch it but

when I walk to school I walk past a fishmonger. And I bought four very fresh fish.. Now this is called mackerel

ST: I've\*\*\*\*\*.

← encouraging other children to voice opinions.

← explains + endorses the efforts of the child.

introduces task

Relates to 'understanding' of child + ZPD.



T: Stop interrupting. What I'd like you to do very carefully is to think of a sentence inside your head that you could describe the fish. On Friday we touched the fish didn't we. Some of you wanted to stroke it.

Chorus: I didn't\*\*\*.I couldn't

T: So some of you know what it feels like, you know what it looks like and <sup>reconstructing knowledge</sup> some of you know what it smells like. This fish is actually still quite frozen. On Friday the fish was still quite fresh. But now it's frozen but the good thing about that is that It's soft and glistening over the surface.(feeling the fish)

JA: It feels cold (stroking the fish, and others join in) <sup>models language</sup>

T: Don't press it. How does it feel, how does the surface feel.

PA: Cold

T: Apart from it being cold, it's not just cold, it's something else.

Chorus: Slippery\*\*\*slimy

T: Slippery slimy good. Does it feel rough at all how does the surface feel how would you describe it?

SA: It feels a bit rough (stroking the fish from the tail)

T: OK, now do you know what a fish is covered with, their skin is covered with <sup>guided participation</sup>

NI: Gills

T: Well (hesitant, enquiring tone) <sup>Bridge</sup>

NI: By gills I mean um.....

T: The whole skin is covered by something think of something beginning with sc, sc

Chorus: Scales.

*Suggests descriptive words using appropriate adjectives*  
*teaching better the cracks, filling gaps*  
*Bridge where they know & need to know process -*



T: Good, sometimes the scales feel rough, although the fish looks extremely smooth and shiny.

*models appropriate language*

TP: If you like this it feels soft (stroking the fish) and if you down it hurts.

T: Does that feel rough? (stroking the fish) *Probe to avoid child losing track*

PA: When you go up it feels rough, when you go down it's smooth.

T: That's good because in one way the scales go one way they lie flat and smooth and if you stroke it the other way it's rough like when you stroke a cat.

*Suggestive questioning + modelling language*

AL: Like you stroke a dog.

TO: On my holiday my nanny went fishing and \*\*\*\*

T: Did she keep the fish?

TO: She put it back in the sea. *Imitated voice*

T: Well this is called a mackerel and it came out of the sea and you can eat it. <sup>TP</sup> ~~SA~~ what did you want to say?

TP: (shakes his head)

T: Well the thing is people do obviously eat fish. Some people choose to be Vegetarians. But hundreds of years ago before shops and farms people had to go out and hunt. They caught fish in the sea and hunted for animals. Without that they wouldn't have been able to live. So hundreds of years ago that's what people would have eaten. They could only eat what they could find, wild fruit and berries.

JA: They'd have to be careful.

T: Anyway, so fish was important. Anyway we're going to stop all that now.

TO: ...and mushrooms.



T: (Teacher holds the fish) feels slimy (classroom assistant puts descriptive words on The board.

HM: It feels slimy

T: So HM is right it feels slimy (stroking the fish). You could say that when I stroke the fish it feels slimy.

Chorus: It feels slimy

T: Now put up your hands.

DE: It looks slimy. *Discourse guide/bridging.*

T: Why do you think it looks slimy?

DE: Because it's wet.

T: Because it's wet. Well the fish looks slimy too because it's wet.. Aha

HA: It's very beautiful on the top.

T: Why?

HA: Look at those patterns on the top.

T: That's good it has these marvellous patterns on the top. (pointing to the patterns) Very unusual.

SA: You see that stripe? (feeling the fish)

Chorus: yes\*\*\* Can I\*\*\*\*\*

T: You said a lot of things there that's good.

MP: I think it's pretty

T: Yes I think it's pretty....why do you think it's pretty? What do you find that's Pretty? *Question to elaborate child's thinking*

CA: The skin.

Chorus: skin\*\*and \*\*\*yes (laughing)



(SA - expressive language prob, child)

T: No don't be silly because it is pretty and I think it's beautiful because of its beautiful colours the beautiful silvery colour and the dark markings and the fact that it appears to be shiny doesn't it? What about SA what do you think what can you tell us about the fish?

*Draws SA in entire offers who reluctant participate*

SA: In the middle on the back\*\*\*. little more\*\*\*pieces of the tail..it goes down

T: Yes the tail continues underneath. So we know what it looks like. We haven't Talked about its shape yet. What can we say about its shape?

*rewards for SA*

TO: It's long (fingers the shape in the air) and it goes in like that. It actually goes out at the end.

T: (nodding) Yes it's very slim before its tail. *He reinterprets the child's response*

CU: Well it goes down (pointing) and it's like a stretched out circle. There's a triangle at the end.

*CH response*

T: Oh that's fantastic because do you know what came to my mind? Do you know the word oval (making a shape in the air)?

*make it look as though the child has given her the idea.*

CU: And with a triangle at the end.

T: Fantastic, a long stretched oval with a triangle at the end.

CU: Isn't an oval like a circle?

T: Well in fact an oval comes from a circle.

*co-constructing knowledge*

T: So that's a fantastic way to describe it. CH you haven't told us anything about it. What would you like to say? Can you see (showing the fish to the child), its eye.

CH: It's got .....a.....

T: You can hardly see its eye today, on Friday it had quite a big sticking out shiny eye

Does anybody else want to say anything else about the fish HM?



HM: The eye is frozen.

T: Well it is frozen but we are going to pretend it's not frozen.

SA: The eye's got \*\*\*\* yellow

T: Yes, I'll just put my glasses on the eye's got yellowy-orange \*\*\*\* .SA you need to move back. It's got tiny, tiny .....

CHORUS \*\*\*\*\* it's got\*\*\*\*\*.

T: That's right\*\*\*. you need to go back to your circle

ST: It's got \*\*\*\*\*at the end of a hook

T: Yes, that's a fin \*\*\*\* the water goes through there and the oxygen in the water stays in the body and the excess water comes out of its gills.

Ch:  
CM: ..... it's been ripped

T: That's a good word there's a bit of the fish's blood there

AC: I just want to say where the gills are (pointing)

T: They're there and that's where the excess water comes out

SA: Will they be pretty full?

T: They take in the water through their mouths

SA: The scales make them bleed

T: The scales are actually protection. So now you can smell it. Do you like that smell?

CHORUS \*\*\*\* it pongs\*\*\*\*\*

SA: It's kind of like frozen carrots

T: Sometimes smells remind you of happy times and perhaps when you've been fishing smells can make you remember.

SA: I have a good memory

CT: You could write that it doesn't smell nice

scaffolding - modelling appropriate  
language.

T: What does it make you do to your face when you smell fish (pulls a face)?

HM: It makes you screw up your face

T: I think HM is right, it does make you screw up your face, almost like shutting your nose off so the smell doesn't go up. Now there are a lot of things we've talked about, we're going to write three sentences\*\*\*\*\*feels, smells. Some of you will need to wash your hands.



TA/GW Guided Writing Observation 2. 12 in group Year 6<sup>1</sup>

Transcript conventions.

bold print      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials.

T: Right, hurry up FM, JL, you need a pencil and a rubber. Hurry up we need to get going straight away. Now let's just think what we were doing in History today. Umm we were talking about the origins of tragedy. We found that most plays being shown today are comedy but second were the musicals and tragedies. Plays were very serious and dealt with serious issues. We found that they originated from festivals. Plays were very serious \*\*\*\*the song you sang when you sold your goods. There was a party, drink and music and they wore masks. The city street would take control. If there was bad behaviour\*\*\*\* They think they'd make it more formal and part of the festival would be in a big theatre\*\*\*\*.and men in their\*\*\*.would write their own speeches and act them out, design themselves a mask,\*\*\*\*.because I know that\*\*\*\*. And they deliver a speech that was really thoughtful\*\*\*\*\*

recap

recap

Now we are going to

Ch: Make our own

T: to make our own and we are going to write our own tragic speech our own festival with a mask

preleps is



CH: make our own

T: The winner will win a wreath of ivy.

*motivational*

CH: So were the Greeks really into this just for special occasions ?

T : They kept them for special occasions\*\*\*\*\*

Ch: Like in the Olympics

T: I don't know they had different sorts of wreaths, they had laurel.

Ch: They had ivy

T: Ok now are you with me, we are going to Odysseus and you are going to design and make a mask just right for Odysseus a monologue when only you are talking trying to get the audience to feel sorry for you. How can you change your English to persuade people to \*\*\*\*\*Let's just recap on how Odysseus, what terrible event happened to Odysseus

*crucial recap.*

Ch: His men had started cooking cows

*reconstructing knowledge*

T: Yes

Ch: No Aristotle, Aries

T: No\*\*\*\*\*.When they\*\*\*\*\* the cattle the god who owned the cattle\*\*\*\*\*as it is they haven't barbecued\*\*\*\*\* they don't know that these are sacred cows\*\*\*\*\*Well done \*\*\*\*\* Apollo who can remember who Apollo was because they're chasing that woman turning into a tree in that picture. So Apollo next morning is getting into a ship ready to sail towards home Suddenly the sky came down almost purple black so you can tell the difference between the waves the rain coming down, and a huge storm Suddenly that black black sky is from side to side and what happens to the ship?

*reconstructing knowledge*

*Question: & recap. Co-construction of knowledge*

Ch: It crashes in two

T: Crashes in two



Ch: Like The Tempest

T: Like The Tempest, good, and Odysseus was washed up on the island, do you remember when we started the story he was on an island

Ch: Calypso

*recap & correction*

T: Yes Calypso's island.\*\*\*\*\*Yes we've come full circle because

\*\*\*\*\* Calypso \*\*\*\*\* he is telling the story to the girl and her father

Ch: So why is he

\*\*\*\*\*

T: You remember what happened\*\*\*\*\* from Calypso's island he

came to\*\*\*\*\* he just got up to tell him about Calypso

Ch:\*\*\*\*\*

Ch: \*\*\*\*\*

T: One at a time

Ch: \*\*\*\*\*

Ch: He'd have to tell them about it

*recap & question*

T: Do you remember that tune 'Catch it on the way back from the festival

Ch: That was the last

T: Absolutely so we started on Calypso we went to the island where he was hiding in the wood do you remember

Ch: Yes

T: He went to the island where he was hiding in the wood and then retold the whole story from the very beginning how he got to Calypso's island and how he got back there. So I want you to tell your tragedy I want you to do what your your speech is going to do\*\*\*\*\*You were saying \*\*\*\*\* one or two events on that journey

*recap*

*modelling.*



Ch:\*\*\*\*\*

T: He hadn't any news\*\*\*\*\* so he would only talk about his worries

T: OK so basically do you remember about the tragedy, you've really got to like the character, you've got to get the audience to feel sorry for you feeling what sort of emotions and feelings you want to create in your speech. Have a think. OK what sort of feelings do you want the hearts of your audience to have ?

prelepis.  
modelling  
+  
suggesting.

Ch: Sadness so you want them to feel sad, you're sorry for him, yes

T: What about, do you want the audience to feel sorry for him. You want them to be anxious for him.

Ch: He doesn't know

Ch: He will in the end, if there is an end.

T: Now, so good that's what you want your audience to feel you really to To feel they want Odysseus to get back and meet his son pity him, all the hardship he's been through. Just tell tell me what he's gone through what he's done.

Ch: He nearly got drowned in a boat.

T: He's endured two sorts of storms, good what else has he suffered?

Ch: He's been captured on the island

T: By Calypso

Ch: Been hungry

T: He's been hungry, good. What else, what big events have happened ?

Ch: All his men have been eaten.

T: By what.

can understand  
knowledge.

Ch: Cyclops

T: All his men. What big events have happened. They were eaten by the cyclops or eaten by the six-headed monster.

Ch: A shark

T: That happened, there was the lotus eaters. Do you remember the island you went to where the men had eaten those flowers and also he had to strap himself to the mast. He suddenly forgot about home and didn't want to leave and also \*\*\*what happened after the mask.

Ch: \*\*\*\*\*

T: What is it all

Ch: \*\*\*\*\*

T: Now we're going to start off, not with drawing but with designing the masks. Now at the moment there is an interesting exhibition on Rembrandt . Have you ever heard of him? Good good. If you look at his etchings they're really bizarre ,they're all self portraits. It's alright if you're handsome, he's pulling all sorts of amazing faces. They're really strange bizarre faces \*\*\*\*practising how to to draw facial expressions because he drew these pictures with lots of action happening. So if suddenly God was descending from the heavens he had to get the right expression. So he practised and that is what we are going to do.. I'm going to give you a mirror and you must choose a characature. I want you to pull a face that you think Odysseus would have on his face sitting on that beach, knowing that he may have lost his son and wife. Also he may be feeling very guilty about those men. All those men had families. Ok, so \*\*\*\*\*.I'll do it to no-one can see you, you'll have privacy \*\* I want you to look in the mirror \*\*\*\* Odysseus would have\*\*\*It is hard and

modelling  
task or  
making  
suggestion

Negotiating Failure -  
Teaches as mediator

11pp 2

1

Guided Writing Observation 3 IN with 12 Year 3

Transcript conventions.

bold print      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials.

cap. { T: Aha you should be looking this way. So last week AC this is a reminder  
now last week you all brought in your teddy bears and do you remember  
You talked about your teddy bears

SK : We havent seen our pictures

All: I have I have

T: You havent seen your pictures yet oh you go out don't you SK well all  
your pictures are in your books just reminding you all the pictures are stuck  
in your books can you go out SK you need to go out now we'll try to get you  
to catch up when you get back

SK: Is anyone else going out

cap. { T: No OK just to remind you that I brought in my teddy bear and Miss  
brought in her monkey and I brought in a little teddybear. You tried to  
describe your creatures. I call them little creatures because NS what did  
you bring in what did you bring in do you remember NS take your hand  
away so I can hear you

Question.

NS: I brought in an ET an alien as well \*\*\*\*\*

in appropriate  
response.

T: So they look quite different from the soft teddy bears don't they and DM  
what did you bring in.

DM: Very different I bring in my big big doggy

T: Very different DM and you did some very nice writing and

HM: Why have they got bells

T: Well spotted HM was listening very well because she noticed that the teddy had a bell two bells actually a bell in each ear and this is a very useful for this teddy bear and I was going to tell you about some of the adventures that these teddies have at night. Because they spend the day sitting on the trunk upstairs on the landing in my house. And if there is nothing much to do they tend to sleep so when it comes to night time when we

are all in bed they wake up needing something to do a bit of fun now this bear is lucky because this bear is his friend and these bells have magic

powers so what these bells can do is if this bear goes up to a bedroom door that's closed and rings its bell the door opens and in creeps the two bears and what they like to do best of all is to do to the end of the bed that anybody might be sleeping in and they can just about manage it if one stands up and the other one climbs up to the top of its head and stretches up

and do you know what they do they tickle people's toes and then so sometimes in the middle of the night I wake up and think oh what's that

All: Children laughing \*\*\*\*\*

T: I have only recently found out found out that these two bears have been playing tricks in the middle of the night that's what they like to do they go into my bedroom and tickle my toes they can go into my daughter's room and tickle her toes they can also go into the empty bedroom where the door is shut where all the other toys are because my children have grown up and they don't use their toys but this one can open the door by ringing its bell he can go in and this one follows and they can have a lot of fun with the other toys at night and these are all sorts of adventures they can have in the

modelling  
language.

modelling, also  
creating a cosy  
atmosphere.

humour



middle of the night so this is like a fairy story it's not true but you can use your imagination and just think about any sort of story that can happen to DP'S dog perhaps N's ET and alien or any little your teddy that you brought in just remember HM is sitting there with her hand up so I'm going to ask her first. HM

praise. Holds attention. Rewards by example.

HM: Do you know what my teddy does sometimes I follow him do you know what I do

T: You follow him

HM: Do you know what they get up to they turn on the TV and make popcorn and watch a movie

positive response from HM

T: Amazing that's a fun thing to do stands on the TV and makes some popcorn Aha well DM

DM

DM: My lizard really does have some fun time at night time

T: Remember your lizard is a real thing.

DM: I want to talk about my doggy every time he either sleeps on my bed<sup>room</sup> sleeps on the floor then he wakes up and walks around the house to see if there's anything to eat and then he findshis other friends the other big doggies and they go downstairs and play.

honoured voice

T: Do they

DM: They hide and seek and stuff like tha

T: Your big dog must be very popular because this gives the others rides on his back. Aha is there anything else HB

HB: My dad's teddy could go like umph umph woosh I've lost my leg

T: And so you think he might need a bit of help to have adventures perhaps he needs an old doll's pram or something old sh don't interrupt and be pushed around perhapsyou could think about what a very if you've got an old teddy perhaps he doesn't have perhaps he day dreams

fills cracks reformulates models language suggests



HB: My teddy could sit on his doggy's back and

\*\*\*\*\*

T: In a hospital

Chorus : \*\*\*\*\*

T: You can sit down to tell us right you could tell the tale of how he lost his leg AX you've been waiting patiently. It was when I was small To go downstairs

AX: \*\*\* to go downstairs to watch TV Watch TV  
bridging.

T: so how does he know how do they get out of the door.

DM: bigger than this desk

T: He can reach up and climb

AX: He can just push the door open

T: Aha well these two have got suggestions because

\*\*\*\*\*Very thing that's why they need magic to get the door open what about adventures which your bear might have (looking at TB)

TB: I don't really know any adventures my bear might havent thought of one yet.

T: OK well I think we've had quite a lot of ideas from the other children often toys do like to have adventures in the night I was actually thinking of an adventure that one year these two actually went to Lapland actually because I said that Father Christmas had a bit of a holiday camp for old toys they can just go and have a bit of fun for Christmas who started off then and just like to go back for a bit of a holiday UMMM You could have a lot of things happening to them what do you think they would get up to in an adventure. (looking at NS)

N: I don't know

provides a bridge with/ where to club is at

Teacher had earlier model the task. AX responds.

Q in order to give a clue as to how to proceed.

often use ideas.

T: You don't know you've seen the film have you ET perhaps they have  
*suggestion.*  
magical powers are they friends or perhaps they meet each other somewhere.

5

*included  
a reluctant  
child IRF?*

NS: On the bed so NS what about you

T: On your bed perhaps your bed is a bit of an alien *elaborated feedback.*  
think

NS: They lie on the bed

T: Do they disturb you at night

*Probing question.*

NS: No

T: A bit louder. What do you think.

NS: Taking up too much room

T: Taking up too much room you with them in  
have much dreams well perhaps you could, sorry?

NS: I have nightmares

T: you have loads of nightmares Oh dear nightmares  
appear your nightmares. Perhaps they could rescue you.

*guided construction  
suggestive.  
allusive questioning*

how about that.

NS: No

T: No it's impossible in fact you sound bit like

NS: He is cute

T: Perhaps you need a bit longer to think about

*does not completely  
discuss this but suggests*

DB: One time I saw this movie about these toys  
there was a scary movie

T: Do they why were you scared

*makes what he says  
important*

DB: They become evil and do horrible things

T: they become evil and do horrible things. Did i

DB: No when my dad saw it he couldn't sleep fo

*recap + elaborates  
with a question*



T: Well perhaps it wasn't the sort of film you should be watching anyway

DM

DM: My dogs in one of my dreams \*\*\*\*\* It's actually

with me in a nightmare.

T: Does he rescue you

DM: No he's actually alive and he's really big and so he carries me on his back so he's lost then we walk around then we fall over

T: Do you get rescued in the end or do you wake up just in time.

DM: Actually sometimes yes \*\*\*\*\*

Teacher returns to

TB who has said little

person Whatever he wants to

T: Well let's just hear from TB

TB: Has D's lizard come yet

T: When's your lizard coming DM

T So we wont talk about this lizard, now lets because we'll hear lots later.

Now I think I might like just a couple of sentences if I was about my bears about my bears

HB: Can I go to the loo

T: Just wait Do you really want to go can you wait I'm going to call my story At night this is the name of my story I'm going to give my bears names I'm going to call them Sam and Dan.

All: Which one is Sam

T: Sam ends in mmm sound. This is Sam and SAn ends in nnn. I put my lips together I'd like you to start off by using their names and I'm going to tell you their names Sam and Dan sleep all say. That's my first sentence starting with a capital letter and ending with a full stop Now d. I've more or less got to the end of the first line but I'm going to carry on OK so that's my first

enters his world

opportunity for honoured voice

allusive. Q

modelling written work - spelling.

7  
sentence and it's just one line long it's a bit shorter Sam and Dan sleep all day and I'm going to you just a bit about them because if I was writing a story for someone they wouldn't have heard what I've told you and I'm going to say. They live upstairs in my house and going to tell you where on the top of a trunk my pen's running out on top of the wooden trunk

prescriptive  
here - how to  
write a  
sentence -  
grammar

HB: Does everybody know what a trunk is

T: Outside the bathroom. Now that tells you quite a lot in that second sentence right Yes TB

TB: Do we get to see the film.

T: Which film

It's not for you it's for Mrs Middleton

Now how many sentences have you seen so far.

HM: three

T: Now what makes you think its 3 sentences be

So how many sentences.

HM: 1 2 3

T ; Do you think it's something to do with these .  
commas And they're not the same as full stops at  
sentence they just split it up a bit. DB how many

DB: Two

DB: 2

AX

AX: 3

T: 3 What about NS

NS \*\*\*\*\*

T: AX read the first sentence to us

AX: Sam and Dan live in my house

V A Middleton M1584866

T: It is because you had the stop there didn't you because there's a full stop perhaps I need to make it a bit bigger they happen just to finish off the line it's not the end of a sentence it's the end of a line. This is the start of a new sentence because it has a capital letter so who'd like read the second sentence to us HB can you just wait a minuit DM sorry to interrupt would you like to read the second sentence

DM: I've upstairs in my home on top of a wooden trunk

T: 2 sentences can you see that Stop stop the sentence. I purposely made this quite a long sentence for you to show that they can be more than one line long. Because I want you to do your writing I think I might start my next sentence with At night

Chorus: Oh that's not a good (pen doesn't write on the board)

T: You're right aren't you I don't know why they were alright last week saying At night Sam and wake up and then Dan I'm going to start my story about what they get up to at night do you want to go to the toilet H you could call it Adventures of Teddies or Teddies' adventures would be quite good wouldn't it a lot of you are thinking about what your teddies get up to at night so that 's a good short story.

Chorus!: \*\*\*\*\*

T: When everybody's gone out for the day

Chorus: Take over they tend to

T: Well that's a good thing to write about too so I'm not saying you have to do about night time just try to get some ideas together may be what gave A the idea that when the house is empty

HM: And the cat's outside

T: and the cat's outside

HM: Off my bed and get out of the cot 2 by 2

VA Middleton M1584966

HM - severe expressive language problem



popcorn

T: Aha

HM: and

Two by two

T: so the small one's in the front row.

HM: The little one sits on the big chairs they all hide \*\*\*\*\*they all have their own ball they all hide

T: Good Good story isn't it. So when the cat comes in They run and hide all their popcorn So what would they do if the cat saw them

HM: He would get this

T: Aha I'm really pleased you told me all that because that sounds an excellent story doesn't it

HM: And they have a holiday in Majorca

T: Well they're going to have holidays in Majorca I wonder how they get there

HM:\*\*\*\*\*

T: Do they get in people's suitcases.

HM: The little one goes

TB: They can magic themselves back they need to be well organised

T: Excellent well I They've gone because they thinking there You've got lots of ideas And we'll have a short story

elaborates  
+ restructures  
reformulation

Assessive  
questioning

**JS/GW Guided Writing Observation 4 12 Year 5 children**

Transcript conventions.

bold print      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials

T: There are different types of writing. Who can tell me the different types of writing?

Ch: Joined up handwriting.

T: I don't mean physical handwriting. I mean writing as in story writing. Can you give me an example?

Ch: Um, fantasy writing.

T: Fantasy, excellent. You can get fantasy writing, what does the word fantasy mean?

Ch: It means something that isn't real.

T: Good. Something that isn't real, so can you give me another word. HM put your hand up.

HM: Fiction?

T: Exactly. Good fiction is a story you can make up. That's one type of writing. Give me any others.

Ch: Legendary legendary writing.



T: Legendary writing. A legend, what do you mean by that?

Ch: Old legends, old myths.

T: Good. That would fit under fantasy, old legends, old myths, old fables.

Ch: Facts.

T: Yes, you can have factual writing (she writes on the board). No. 2 you can have factual writing. And who can give me another word for factual writing?

Ch: Non-fiction.

T: Non-fiction, good. Non-fiction. Now can you give me an example of non-fiction writing? I'm going to concentrate on this today. We've had our fantasy and fiction. We wrote narratives and we made them up. I'm just going to briefly talk about non-fiction and factual writing. Who can give me an example of that sort of writing?

Ch: A leopard is the fastest animal on earth

T: Yes (elated). You could write a leopard is the fastest animal on earth. That would come under factual where you give an example and how many facts you could write down. What about your topic work at school? What about

sc...sc...sc...

Ch: Science.

T: Science. What would you do?

Ch: History.

T: History. History is based on fact but not necessarily facts that we know, we didn't live in those times, but what we call educated guesses. From what we know about the era we work out certain things, would have happened but not true. But science what do you write up in science?

Ch: Write up an experiment.

leads kid  
towards the  
concepts

probes to  
elaborate

adds  
another  
layer



T: Ex-per-im-ent (writing on the board). In science you write up experiments or you write investigations. In other words just take science for an example. You follow a certain pro-pro-pro.

modelling  
tasks &  
prelepis

Ch: Progress.

T: No, no, no. You follow a certain format.

Ch: Pro -cede.

T: Getting close. You follow a certain procedure. That was close, good. Sit nicely, you follow a certain procedure. I'll clear the board because the particular one we are going to concentrate on is what we call procedural writing (writes on the board). Watch how I spell it. Pro- ced - ur- al writing and that is when we follow a certain Procedure. Now what do I mean when I say we follow a certain procedure?

unsuccessful  
and  
elicitation

AH: When you've got a procedure it means you proceed in a certain way, order I think.

T: Yes, in procedural writing we follow a certain order, a good word to use, order. A good word to use (writes on board). If you're going to do a science experiment and you want to prove that water corrodes iron if you leave iron in water long enough it will become rusty. So you'd have water first (writes on board) then you'd immerse your iron in it and you'd leave your iron in it for a certain length of time etc. etc. So you would do it in a certain order. That was an excellent explanation. So it goes in a certain order. Any other points that you can think about in procedural writing?

modelling  
the task  
provides  
framework

Ch: Mmmm..

T: I can't hear dear. We want to pitch your voice clearly dear.

Ch: Schedule.



T: Yes Schedule is a word that very close, schedule, schedule, but you follow a certain format. Yes, you set it out in a certain way, in a particular way. That is what is meant by following a certain procedure. Now today, not only are we going to do procedural writing we are going to do a particular part of procedural writing. We are going to do a recipe. If you give me time it's not just a recipe with a difference. An ordinary recipe as we know a recipe. Now what is a recipe?

Ch: It's how you make food.

T: It's cooking. Now we have a recipe What is the first thing you see when you look at a recipe book ? What is the first thing ? I know that cooking for boys has become just as interesting as cooking for girls. When I grew up girls went into the kitchen and boys didn't. Now it's such a role reversal because I live in the country and travel into London to work and get back late so my husband does all the cooking .I walk in and say 'What's for dinner dear?' instead of him walking in and saying 'What's for dinner wife?'. I now say 'Husband what have you cooked' So girls and boys are interested in cooking. So let's see, sit up nicely. I know you're tired and it is hot. What's the first thing you see when you're looking at a particular recipe?\*\*\*\*\*how to make a chocolate cake.

Ch: Ingredients.

T: Oh well done !The first thing you see is the ingredients ( writes on board). And the ingredients are usually listed a etc. etc. What do you want to make?

Chorus: Cookies .....chocolate cake.

T: Chocolate cake, chocolate cake, so the first thing you need is cocoa to turn into chocolate. etc etc. you have flour, you'd have milk.

probe .

this is  
motivation  
setting it  
in a fami  
context

human to  
keep kids  
interested

Ch: Eggs.

T: You'd have sugar,sugar if you wanted to make it sweet and don't do what I usually do when you make a cake don't forget to put in anybody knows this this most important thing is

Ch: Sugar...sugar

T ...is baking powder.I've had a chocolate cake as flat as that (hand) because I forgot to put in the baking powder. Baking powder makes it rise.

honest  
voice.

Ch: My mum forgets to put the sugar in.

T: I usually forget to put in something, cooking is not my speciality. I'm not particularly good at it so, in a recipe the first thing you see is ingredients (on board). The second thing after you've listed the ingredients. What's the next thing? Two important things.

modelling

Ch: Ummmmm

T: They have to follow in order, it was AH who said we have to do things in order.Sombody else said we have to set it out in a particular way and I'm doing both. I'm putting things in order I'm setting it out in a particular way. What's the next thing that comes in a recipe? TG

TG: Put it in the oven.

T: No no no .Now look, I've just made a list of ingredients, I need another title  
You need to have a m..meth..meth

cred  
elination

Chorus: Method.

T: Method, good, thank you.(board)and in your method they usually say 'Take the flour eggs and butter.rub together or take flour and butter beat eggs and cocoa powder. Add so much liquid and they normally give you specific quantities,100 grams butter (board) take 100 grams flour beat 3 eggs. Beat *flour*

praise



*butter eggs together. Ah please sit up.. They list in Method to tell you how to do it. I want you to do a recipe for me but not like a cooking recipe. I'm going to read you a good example. This is 'Recipe for making parents shout'.*

*Chorus..(laughing)*

*T: Quite easy I suppose you're saying.*

*Ch: Just smash a window.*

*T: Now that's exactly what I don't want. This is quite subtle. Who knows what the word 'subtle' means ?*

*Ch: mmmm ....*

*T: I can't hear you. (a short pause). Subtle means not doing things in an obvious way. So I want you to listen to this recipe. You will need, and hear your ingredients are, a puddle, a small spade, if not hands will do, a younger brother or sister. Those are your ingredients, you need a puddle some soil, a small spade, a younger brother or sister. Those are listed under ingredients. Method (on board) would be um.. wait until rain stops. Number 2, ask to play outside 20 or 30 times. No3 find a medium sized puddle. No4 get soil from garden, mix well. Beat until puddle is thick. No 5, This will suit AH with his younger sisters at home and don't you dare do this at home, what's that TV programme 'Don't try this at home ?' .No 6 ,walk through puddle 3 or four times. Brother ,sister ,stand in puddle. Then walk into the house, best if everyone else is upstairs and No 7, run into every room in the house shouting .... 'Come and look at this'. This recipe always makes adults shout if your house has pale carpets. With this recipe what I mean be 'subtle touch' is sometimes over the top, like smash a window.*

*Ch: Or shoot a sister.*



*T: Yes well thank you, that's not what I need. I want you to think of an ordinary day situation just an ordinary day just bringing mud into the house. I know what used to annoy me if we were going out when before we'd leave the drive my daughter would say 'Are we nearly there?' You know if we'd have a long 8 hour trip. 'Are we nearly there?'. So I want you to think of something ordinary not something over the top., just an ordinary everyday situation that you can twist a little and what I like is the subtle touches the little extra touches like 'ask to play outside' and ask 20 or 30 times you know how that can really annoy parents. You know you say 'Please Oh please' by the tenth time you can see their faces. That is quite a good touch. You can see their faces going a bit red and then I like this little touch, you put the soil in the middle of the puddle and you mix it until the soil gets really sticky it's just those little touches. The last touch of course, best if the house has very pale carpets, in my lounge well that's just one example. I'm going to give you a piece of paper.*

*prelipsis?*

*prelipsis?*

1. minor construction of knowledge  
Negotiating Failure  
Teacher as mediator

Hpp 5

## ES/ Guided Writing Observation 5 5 children Year 3

### Transcript conventions.

bold print      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials.

T: Could you have a seat now please away from the instruments, this is not a Music lesson.

Ch: CH's gone up.

T: I've sent CH up. It's your Speaking and Listening lesson instead. Get one pillow and put the rest of the pillows in a pile please.

Ch: There's not enough pillows. When they get down can we draw Tuesday and Wednesday ?

T: Right, thank you very much boys. Tell you what, how about it if we draw around you today (points to CA) instead \*\*\*ut that depends \*\*\*\*would that be better? (Teacher draws an outline of a body on the board)

Ch: and can I draw the head ?

T: Have a seat, first of all, CA. Thank you very much for apologising it's really a nice thing to do and don't ever get upset it was only a drama lesson. OK?

T: Who can remember anything about Timothy Winters from last week? GA what can you remember about .....

GA: His feet are bloody.



T: His feet, they are indeed bloody. (writes this on the board outside the shape of the body). bloody and why are they bloody?

develops  
child's response  
further

GA: Because he hasn't got any shoes and he steps on glass and stuff, he's really poor.

T: He's really poor (writes on the outside of the shape on the board)

Ch: And he lives in a shack.

T: He's so poor he sleeps in a sack.

Ch: His dad sleeps in a bed (T writes this on the outside of the shape)

T: Well remember let's be careful here because last week we did some fantastic role play work where we decided what might happen but remember what's in the poem and what we made up about the poem. We think his dad probably had a bed. Tell me something else about the way he looks. MA.

← connects a  
child in such  
a way it  
appears the  
child was  
right

MA: His eyes are big as footballs. (T writes this the outside of the shape on board)

T: Exactly, he's got big eyes and what shape do you think his eyes are if they're like footballs?

MA: Ummmm

T: What shape do you think MA?

← contingency

MA: Really round.

T: Really round. (on the outside of the shape on the board) and CA do you think he's always amazed by everything he sees? because his eyes are always big and round like that. It looks like he's just going. OH (draws two big eyes on the board and circles her eyes).

suggestive  
questioning  
  
and  
elicitation

Ch: Oh I know, CH's big glasses can be the big eyes.



T: Yes do you know your glasses are round, they look like two big round eyes. Tell me something about him CH, something else about how he looked.

CH: He had teeth like splinters.

T: Well done teeth like splinters and his ears were like (writes on board)

Chorus : Bombs, bombs.

T: Bombs (board)

GA: His belly was white and his neck was dark.

T: Ears like bombs, a white belly because why did we decide his belly was white again ? Do you remember MI why did we decide his belly was so white ?

MI: Because he hasn't any food in it.

T: Actually it was CH who told me, why did you think that his belly was white, can you remember? CH

CH: Because he only ever had sweatshirts on.

T: That's right, because he only ever goes to the beach or goes to some nice warm country.

CA: Only his neck gets tan\*\*\*\*\*

T; Do you think it's the sun that made it dark or something else that made it dark?

GA: Dad could \*\*\*ut he hated it.

T: it could have done but

CH: I know he would probably have been whipped so many times.

T: But what else what would make your skin look so dark?

Ch: The sun.

Ch: Cut.

T: No.

builds on  
child's response  
translates  
meaning  
reconstructs the  
answer.

← probe  
refocus



GA: Scars?

T: GA you're charming today, anything else? Well look at your hands and your Mum says, "are your hands clean?"

allusive  
questioning

Chorus: Dirt (on board)

T: Because if it's really,\*\*\* there's a word called 'ingrained' which means that when something is so firmly into your skin you couldn't actually wash it off and sometimes when you see these poor people that live on the street and some people who don't have any homes and don't get a chance to wash.

provides  
information  
reconstructing  
knowledge

Ch: Oh I know

T: Sometimes you see these poor people and their skin is so dark you'd think it would take hours of washing to try to take that dirt off.

← adding layer  
of info.  
reconstructs  
knowledge b  
relating to  
familiar  
situation

GA: you need to duck in the sea and stay there for 5 hours and then get out.

T: But the sea is not enough to wash you cleaner, you need to have some soap as well. But what about those in London GA there's no sea in London.

GA: What if someone blasted\*\*\*\* a bucket.

T: Now I think our flight of fantasy has gone a little bit too wild. Right now there's something else about him please, who hasn't given me anything yet KI ?

Ch: He doesn't concentrate at school.

T: Well remembered.

GA: I know I've got one.

T: (on board) doesn't concentrate at school.

KI: Because he's got so much energy and he doesn't have any spare time so he goes

GA: \*\*\* In playtime he\*\*\*.and all that energy he goes hungry and he doesn't concentrate and he gets really mad like.

Writes known  
facts about  
TW outside  
the shape of  
the board.  
Puts the  
assumed  
info. inside  
the shape.

T: Absolutely, that's very good, and GA was saying something else that he was very good at...

GA: He's so hungry

T: Yes and how do we know he's hungry from what happens in the poem.

GA: Because he's really poor.

T: There's something in the poem about he eats his school dinners. Can you remember?

allusive  
phrase follows  
by question

GA: He licks the pattern off the plate.

T: Good boy he's so hungry he licks the patterns off the plate. Sometimes you see these poor people and their skin is so dark you'd think it would take hours of washing to try to take that dirt off.

prompts an  
accurate  
response from  
G.A

GA: And he said Halleluhias so much

T: Amen

GA: I mean Amen.

Chorus: Amen Amen.

Why does he say that. Why does he say Amen Amen ?

GA: He 's trying to \*\*\*on him

Qu. built  
an response

T: Exactly he is saying that there are children who are less, what did he say  
'Less

GA: Less fortunate

T: ( writes on board) Good, less fortunate. At morning prayers the master....for children less fortunate than ourselves and the loudest voice in the \*\*\*when Timothy Winters roars Amen'.

Ch: The world gets.



T: Yes can you remember? It's a special name for trousers and to know about its existence because his dad wears them when he goes hunting. Begins with a 'b-br-br'

Chorus: Britches.

T: Britches, through his britches the blue winds blow. Because what was wrong with his clothes, can you remember CA what were his clothes like? They were enough to sc-sc

Chorus: Scare, Scare a crow.

T: Yes do you remember he looked like a scare crow didn't he because his clothes were so ragged and full of holes (on board outside the shape)

GA: And that welfare worker was trying to find him

T: Well done GA, the welfare worker well done for remembering that.

TI: Was I acting him?

T: Yes you were the social worker do you remember? 'so the welfare worker lies awake but the law is as tricky as a ten foot snake' it doesn't matter what the welfare worker tries to do to take him away from his parents.

Ch:\*\*\*\*\*

T: I said his parents, does he have a mum and a dad?

Ch: His parents went away with a bombardier.

T: His Mum ran off with a bombardier and what was a bombardier again?

GA: It was someone who drives a bombardier plane.

T: so when do we think the poem had been written?

TI: In the war.

T In which war SA?

SA:\*\*\*\*\*

affirm,,  
response didn't  
he?  
also modelling  
task.

cue on

corrects but  
reconstructs  
knowledge +  
questions.



GA: No I don't think so....

T: World War 2 and they say there aren't boys like these any more because they said that after WW2 things were on the up and they would be able to make things better for everybody and that poor children like that didn't exist anymore and of course they do still exist like this, we just don't see them very often. We're very lucky none of us are like this which is very lucky but there are still children who are very poor.

Social

GA: Why didn't Timothy\*\*\*\*

T: Because this is what the welfare worker was trying ... to get them ... to take away from them...so what we're going to do today is we're going to draw around CH, he's obligingly good to be our model. When you draw around somebody the shape is never what you expect it to be, it always ends up looking like this, and what we're going to do is on a big sheet of paper. We're going to work around the outside of Timothy Winters (draws shape on board) and what we're going to do is we're all going to try and remember things from the poem. But all things on the outside, what is fact, can anybody tell me, what is fact?

GA: It's something about somebody

T: And something that we know to be, MI.

MI: True

T: Exactly, a fact is something that we know to be true. It's in the poem it's what Mr Causley, it's what Mr Charles Causley We know that Timothy Winter's feet are bloody because it says it in the poem. OK? We don't know for a fact that Timothy misses his mum but do you know that when we were doing that little role play we thought that he probably does, but that is something that



we are making up about Timothy which is great because it means we are using our imagination. So I want that to be called a feeling and anything Timothy might be feeling, like he misses his mum goes inside his body like 'hungry' (writes 'hungry' inside the body shape on the board).

GA: He's sad

T: Like he's sad, like he's lonely or any of these things, those all go inside and on the outside we'll do all things like...so you'd have 'bloody feet' and we'll have 'ears like bombs' because we know that these things

GA: Wide eyes

T: Wide eyes, exactly

GA: And clothes enough to scare a crow.

T: Exactly, so this is what we'll end up with today, we'll end up with a huge life size picture of Timothy Winters courtesy of CH and on the outside will be all the facts about Timothy and on the inside will be all the facts that we think we know about Timothy that we make up\*\*\*. actions that we took part.

TI: When we've done it are we going to draw him on a piece of paper?

T: We're going to do a big one on a big piece of paper all together.

TI: But you know when we've done the big piece of paper\*\*\*\*T: No we're going to do it as a group so all your ideas will be equally valid and they will go on this piece of paper so that at the end of the day we will have 5 Timothy Winters. So we all tend to agree on most things.

scaffolds  
weak  
cheer

AR Mathematics Observation 6 7 Year 2 children

Transcript conventions.

bold print      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials.

making in  
T: Now this might be a little bit different so we listen carefully. My friend Alistaire made this especially for me last night. I wonder what the shapes are. (holds up a canvas bag and shakes it). Put your hands in the bag and pick a shape out. Take one any one, hold it up so they can see. See what you think it is.

Ch: Per, per

T: P p p I'll give you a clue\*\*\*\*. Polly the parrot says lots of words and this shape has Lots of sides. Poly

Ch: Polly

T: Poly poly polygon. Polly the parrot says lots of words so polygon has lots of sides. Right you have one. Hold it up and tell us what it is. Well done.

Ch: A square.

T: Oh dear me well done (hands to the next child) Sh. Are you watching? Yes.

Ch: A triangle.

T: A triangle. Well done that's right. How many sides has a triangle got?

C: Three.



T: How many sides has that got? (asking another child)

Ch One

T: How many wheels has a tricycle got?

Ch: Two

T: A tricycle

C: One

T: A traingle's got three sides. A tricycle's got..

C: (shouting) One, five, six.

T: Three sides, a tricycle, triangle.

C: A tricycle's got a "tr" in one.

T: (nods) . Yes it's your turn. Lots of words to help us remember.

C: Triangle

T: (another child puts hand in bag) Right. Hold it up so everyone can see.

Right, you can keep that one. JO hold it up. Well done.

SA: Polygon

T: Well done, yes, poLygon. You remembered. (teacher passes bag to next child and says Schh schh. Are you ready to give a name in case he gets the wrong one. Quick, quick. OK VI you take that one and I'll take this one. Can you tell me what that one is?

VI: A circle.

T: Hold it up so everyone can see. It's an easy one. Well done VI.

SA: (Whistles)

T: Schh, schh. (handing to next child) What's that one?

PR: A polygon.

← cues to lead him to the right answer

← repeats

T: A polygon. Well done. Right I think that's all we're going to do today. Now we know the shapes. Right, let's put them all back in the bag. (holding a dice)  
Now on this dice instead of a number we have a shape. Now let's hear you all together. (Teacher throws dice)

Chorus: Circle.

T: We have a\*\*\* (teacher throws dice again)

Chorus: Rectangle (Teacher continues to throw the dice)

Chorus: Triangle.

T: We have a\*\*\*\*

Chorus :Polygon.

T (teacher offers counters to children) Which colour counter are you going to have?

Ch: Green

T: Which colour are you going to have?

C: Red

T: Which colour would you like? Put it down and be sensible. Right we are going to throw the dice , see what shape it lands on. You cover the shape on the teddie board make sure that you don't...yes TM

TM: Don't roll it on the game.

T: Why shouldn't you roll it on the game ?

Ch: You'll knock everything off.

T: TH can you find a square and cover it with one of your counters?

CH put your counter down please so you're ready. Now throw your dice.

See where it lands and tell us the name of your shape. What's your shape?

CH: Poly the parrot.



T: Nearly, poly, poly

← encouraging

CH: Polygon

T: Polygon because Polly the parrot says lots of words, yes think of Polly

/ recaps

Speaking lots of words so polygon has lots of sides.

Ch: (taking his turn) Looks like a zero.

T: Right OK TI?

TI: Polygon

T: Right, CH it's your turn, what's that one called ...a... tri...tri

/ scaffolds a weak child

CH: Triangle.

T: Well done on we go. VI?

/ praise after help

VI: Ummmmmm

T: How many sides?

VI: Three

T: What's this called (to another child).

← involves another child

JO: Polygon.

T: Well done JO. What's this CH?

← praise. involves a child who was wrong before.

Ch: Tri...polygon.

T: Polygon that's right..What's it called? (pointing to another shape)

Ch: Re..rec

T: Yes, a rectangle, don't shout out.

Ch: Rectangle.

T: Excellent, a rectangle. What's this one?

Ch: Pelygon.

T: No not a pelygon, remember the parrot called Polly.

Ch: Polygon.

T: Well done, polygon. Quick, quick are you ready to get it in case he doesn't  
Get it right ?

Ch: Triangle.

T: Excellent, a triangle. Right now look carefully, what are these shapes?(holds  
up Shapes)

Chorus: Triangle, circle, polygon

T: What shapes are these?

Ch: Square

T: Now give the number of sides.(holding up various shapes)

Ch: Four

T: Well done

Ch: Three

T: Now I've got a puzzle.( holding a square and a rectangle). This has got 4  
sides and this has got 4 sides. Should they be the same? What's different about a  
square and a rectangle

Ch: A rectangle's smaller than a square.

T(holding a book)This is a rectangle and (holding a sheet of paper) this is a  
rectangle. What's the difference ?

Ch: This one's longer( points to the rectangle) and this one's fatter.(points to the  
book)

T: Right.

VI: One side is longer here and one side is shorter. (points to the rectangle)And  
in the square is all the same.

T : Fantastic. I'm going to promote you to Chief of Detection Squad. Are you  
all listening? Detection , the square has all the same sides.

*praise +  
indicates to  
think further*



**OY/ Mathematics Observation 7 4 Year 2 children**

Transcript conventions

bold print      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials.

T: I can see that VM is ready to start. Right a star for you (gives ML a star)

| social +  
praise

JY: I didn't know that\*\*\*\*.

T: A well you probably didn't know the rule about getting ten of them so if I  
just give you one (gives one).

| explaining

JY: I'd like eleven then.

T: (giving star to ML) Can you count them in twos for me?

praise +  
learning

ML: 2,4,6,8,

T: And one more, eight and one more.

ML: Nine.

T: And one more.

ML: Ten. I don't think I put that one up.

T: (giving stars to next child) Remember how we did it, 2,4,

recap + gives  
beginning of  
answer

CA: 5,6,8,

T: That's it say it again.

CA: 2,4,6,8,

T: We say 8,9,10 (gives stars to next child)

Praise for  
errorous  
response



VC: 2,4,6,8,10.

*gets it*

T: Well done why did you get a gold star?

*praise + question*

VC: Writing reading singing

T: And singing

T: Well that's a lesson to you, when a teacher gives you a star it's very val-val-  
do you know that word?

*says  
beginning of  
answer.*

JY: Val

*guess it.*

*discusses  
connotation.*

T: Valuable, worth a lot every star is worth a lot. I think what we'll do, we'll do

Minute Maths. (Hands out the sheets and notices that ML has misspelt his name)

Anotio, it should be Antonio. This should be An-to-nio the other way around.

Are you ready then your Minute Maths begin. (An interval of a minute) And

stop. Just finish the one you are doing and then.

VC: I don't think I beat myself today.

T: Are you sure? (pointing to the sheet) these were today's and these were  
yesterday's. How many were yesterday's. Yesterday's are the ones already been  
marked 1,2,3,4,5,6, and how many today?

VC: 13

T: 13 so which is bigger?

VC: Today's

T: Well done.

*disguised learning  
creates opportunities for  
praise*

VC: I think I did beat myself.

VC: Miss you know when it goes down to ten.

T: Yes

JY: When it goes 27 it's going to be 17.

*Tools.*

*at this  
moments  
but.  
praising  
etc response*



stars are working

T: Well done you remembered from what we did yesterday. Good. Stars for you. Now who thinks they can count in tens for me.

VC: Me

Response to praise

T: Ok can you start from 50 and count up in 10s.

VC: 50,60,20,30,40,50

wrong response:

T: Shall I give you the chart?(gives him the chart) to have a look. If you're starting from 50 its getting bigger.

positive response to wrong answer (ZPD)

VC: 50,60,70,80,90,100.

T: Good, just do it once more.

praise after a lot of help.

VC: 50,60,70,80,90,100

T: 100, good..OK now try it back then.

more praise + example for others

VC: 50,60,70,80 90,100.

VC understands.

T: Well done .Now who else thinks they can count in tens? CA how about starting at 100 and working backwards.

asks another child.

CA: 100 90,80,60,50,40,30,20,10,0

ensures VM understands.

T: Well done. Now ML see if you can count from zero and count all the way up.

(Language here 'up')

ML: 0,10,20,30,40,50,60,70,80,90,100.

T: Well done. Can you start from 100 and work backwards?

ML: 100,90,80,70,60,70,

T: 60,50

ML: 30,40,50,60, it's too hard going back.

T: Let me give... let's just look at the guide.

Rescue from failure

ML: 100,99,80,

T: 90



ML: 70,60,50,40,30,20,10,0

praise after a lot of help - working in 2 PR

T: He was successful because he went quite slow and didn't try to rush. Just try it once more and don't rush.

ML: 100,90,80,70,60,50,40,30,20,10,0

Success

T: Well done, are you going to try it without the chart? *Proof he can do it*

ML: 100,90,80,70,60,50,40,30,20,10,0

T: Well done (gives the chart to JY) OK how about if you start in tens and you count up in 10s getting bigger.

JY: 10, 20, 30, 40, 50, 60, 70, 80, 40, 100

STM child forgets the 40s

T: 80,90,100.

guides him over the short bit

JY: 80,90,100. *repeats*

T: Good that's what we talked about yesterday wasn't it? 90,,100 80,90,100 *repeats*

JY: 80,90,100

T: 70,80,90,100

adds a bit more.

JY: 70,80,90,100

T: Well done, see if you can do it slowly all the way to 100.

JY: 10,20,30,30,40,50,60,70,80,90,100

T: Good boy you just have to practise that crossover every day. Good Now today we're going to look at something new, we're going to look at adding Which we've done before, adding (writes 'adding' on board) adding ,getting bigger adding that's the sign there (points) Plus we call it sometimes. We are going to look at adding 11.(writes 11) to numbers just like we did yesterday, we did 40 add 10 is

Chorus: 50

prelepis?  
-models the new task.



*actual structure knowledge*

T: is 50. We are going to do 40 add 11. We're going to practise a little bit for everybody. Some people will find it easy and some people will find it

*prelepsis?*

ML: Some people will find it medium or hard.

T: That's right, so if it's hard what do we do---Keep practising.

Chorus: Keep practising the numbers.

T: Then I'm going to give everybody one of theses charts if you need them.

Now What number have we got here?

CA: 10

T: Ten

ML: Twenty, thirty

T: That's right and the next ten would be

Chorus: 40

T: 40 that's right. This is what we call counting in tens, so shall we do it together

*recapping  
before adding  
another layer.*

Chorus: 10, 20, 30, 40.

T: Now if we've got a 10, 10 and a one, what number does that give us?

Chorus: 11

T: 11, look here's the number it is a 10 and a 1 makes 11. Look here it is with the money.

Chorus 10 and 1 is 11.

T: 10 and a ... is this 11?

Chorus: No a ten and a one

T: A ten and a one is eleven. So we're looking at a number 11 (writes 11 on the board) and it's made up of

Chorus: 10 and 1

T: It's made up of 10 and 1

Chorus Ten and one.

T: And this is going to be the secret to adding one ....try and remember in our

Heads 11 is 10 and 1. So I'm going to show you a trick for adding 10s. I'll put *knowledge* this here just to remind you. (puts it on the board). That 11 is 10 and 1.

Chorus :OK

T: In fact if we stick the money up, if we stick it on the board. What's it made of

CA ?

CA: UMMMMMM

T: Ten and

CA: One

T: Well done, ten and one makes 11 and this will be useful to have.

ML We have one ten and two ones makes twelve.

T: It's all about tens and units isn't it?

JY: If it's 40 and add ten it's 41 then it's going to make 52. *It's unclear but she gives him credit*

T: I think you're thinking along exactly the right lines.

T: Let's start with number 20 and the sum says 20 add (pointing) what does the sum say?

Chorus: 20 add 11 is 31.

T: How did you get 31?

*Probe*

ML: Because 10 and 1

T: Well done, because 11 is in your head

*Praise + explanation + recap.*

Ch: that one there a one and ten

T: Very good

ML: Add to the 20 to the 10 then the one .

T: And then do the one, in that order. So you said 20 add 10.

*recap.*



Chorus: 30

T: 30 *ten*

JY: Add one makes thirty one.

T: (writing on the board) makes thirty one so twenty add 11 makes 31. *adds layer of knowledge*

CA: And if it's 40 and 11 it's 51. (clapping)

T: Very good. Isn't it useful to know how to add 10, because you can use that to help you add 11.

CA: Some people think that you have to have (holds up 2 fingers) two units but that one's a one and that one's a ten.

T: Exactly, which is why we did all that work about 10s and units, Look here it's

ML with the cards. Here's the number. Which is number 20? Eleven is ten And

one isn't it? Add on 10 for me, now add on 1 for me *guided construction*

ML: Thirty.....31

T: 31 Did you see what you did? You did 20 first of all, you did 10, 20 add 10

Chorus: 20 add 10 is 30 add 1 is 31.

T: Well done. CA let's see if you can have a go at this. What number are we starting from

CA: 20,

T: Twenty, can you add on 10?

*guided construction together?*

CA: Thirty

T: Thirty, yes now add one more, one more, you've added 10 ... one.

CA: Thirty, thirteen.

T: Can anybody help out?

Chorus :31

*involving peer*

T: Thirty one. That's why we use these cards so that you can look underneath if

You can't remember whether it's 13 or 31

CA: 31

T: That's why we use these cards because they're very useful. We could do it

With money as well. How much have we got here JY? (*shown 20p coin*)

JY: It's 20

*safe question!*

T: It's 20 and we're going to add, how much?

Chorus: 11

T: 11 which is 10 and 1

JY: 31

T: Do you want to count it for us VC?

*involves peers.*

To see whether JY is right?

VC: It's 20, 31

T: 31, well done (clapping)

Chorus: A star for JY.

T: That's it a star for JY and a star for (places star on ML). All the things we do to add ten and take away ten. Let's see if we can help VM to do one of these.

Would you like to start with 20 or 30 or 40?

VC: 40

*we involving others  
construction of  
knowledge.*

T: You want to start with 40, now let's put another number on just to help you go. Now we're going to do the same thing. Would you mind leaving something on my board (to ML) because people need this to remind them. When we add

11 what are we going to add, we're going to add?

*recapping - building  
knowledge.*

Chorus: 10

T: and

Chorus :1

T: and, to make 11, so what number did you choose to start with?

VC:14

*Review a correct option.*

T: 14 OR 40

VC: 40,40

T: Do you want to try it in your head ?

VC:One more

T: First of all add 10 more.

*constructing knowledge together*

VC: Ten more, there's 50.

T: There's 50.

VC: And one more is

T: ummmmm is

VC : 51.

*co-constructing kn. with peers & teacher*

T:I'm going to ask CA to check it for you just like ML ,how did you have to start with, what was your starting number ?

VC: 40

T: Yes his starting number, 40.11,which is

*was question*

CA: 10 and 1

T: So can you count it up ?

CA: 10,20,30,40,50,51

T: ( intercepts) 51, so was that the right answer VC?

VC: Yes

Chorus: Hurrah

*30 + 10 + 1*

T: Well done, so it's stars for you. Now (writing a sum on the board). Hands up if you know the answer. VM ?

*Consolidation of knowledge*



ML: 41

*stretching a bright child*

T: Well done here's one for you. JY. (T writes  $100+30+10+1$  on the board)

JY: 141

*ML modelling task UM  
learning from ML.*

T: Well done. Would you like to explain ?

ML: 30 and 10 is 40 and one is 41 and 100 is 141.

T: Well done

Chorus: Give me one like that.

T: Excellent explanation, excellent. CA if you were starting at 50 and we're adding 11 what's the first thing that we do ? What do we add first of all ? *supporting CA by doing it in stages.*

CA: 0

T: We add 10, 10 to 50. Can you see what the next one is ?

CA: 50 add 10 is 60

*breaks up task*

T: 60 and because it's 11 you add another one. What's 60 add 1 ?

*breaks it up.*

CA: 61

T: 61, good boy CA. Now then ML ready for a challenge ? It doesn't matter if you're wrong we'll help you out (children handed different coloured cubes)

ML: 180

T: Plus 11

ML: 91

*probing / asked questions.*

T: Just 91 ?

ML: 91.

T: Thank you. Do you want to explain to us how you did that ? *honoured voice*

ML: Leave the one alone

*corrects + supports him to go on*

T: Leave the 100 alone.

ML: I t's the same with the other one, the 10 , the other one is a unit.

T: That's right

ML: And the other one is a 10

T: Very good.

CA: That's what I said

T: So you said 80 plus one did you ?

ML: No 80 plus 10

T: 80 plus 10

ML: And the one would have made 91.

T: That's right.

ML: With the 100

T: With the 100, that's right, very clear.

VC: It's the same trick.

T : The same trick.

Constructing Knowledge.



## TA / Mathematics Observation 8. 12 Year 7 Children

### Transcript conventions.

bold print      Emphatic speech

\*\*\*\*\*      Unclear speech

ch              Unidentifiable child.

The children are denoted by fictitious initials.

T: So you need your Maths folders out, your Maths folders on your desk. Could you get your homework sheets out, good (To Teaching Assistant) so how are we doing JA? Can you give two stars for JA (wiping the board) so you need your Maths file and your homework sheet and we need a piece of paper (Writes 7 on the board) Put your name and the date on the paper (hands out the paper). OK, have I got everyone's attention? This is the key number for today. (writes 7 again on the board) Tell me what you know about the number 7. TH.

TH: It's a prime number.

T: It's a prime number (writes 'prime number' on the board) Jolly good someone give me a definition of what a prime number is. AL

AL: A prime number is a number that can only be divided by itself.

T: Jolly good what else can you tell me about the number 7? It's the square root of what number, it's the square root of what number?

Ch: 14?

T: No 14 would be double 7

*builds on  
child's  
accurate  
response*

*builds on +  
corrects with  
explanation*



Ch: Oh yes,

T: TH: ?

TH: 49

*more questions.*

T: 49, yes, so ( writes 49 on the board)) it's the square root of 49. Anything else you can tell me about that number?

Ch: A cardinal number?

*building knowledge.*

T: It's a cardinal number, well done (writes 'cardinal number' on the board..

Now if you look up cardinal number in the dictionary it'll say that it's any number, any whole number, positive whole number.

Ch: What does that mean?

T: (ignores child) But cardinal is a very important word (writes 'cardinal' on the board and frames it).

Ch: Would any number be a cardinal number then?

T: Yes it's a whole number, a cardinal number is a positive number but the number 7 is culturally very important to us. Where do you come across the number 7?

Ch: Seven days a week.

*most kids know this*

T: Absolutely, we use the number to count seven days a week. (writes 'week' on board). Now if there are seven days a week how many days are there in a fortnight?. There are seven days in a week, how many days are there in a fortnight ?

Ch: What's a fortnight?

T: Aha ,can someone help him there.....

Ch: Two weeks

T: Two weeks...



Ch: Fourteen days

T: Fourteen days (on board) Good, fortnight.

*reverse*

Ch: Where is that from?

T: Fort night, Good heavens we need to look it up in the dictionary.

*demonstrates how to find out*

Ch: It's fourteen

*reverse*

T: It's fourteen nights, absolutely, and we don't need to look it up in the dictionary, good. So it would be four( frames the 4 in 14 on the board),it's the beginning of fourteen nights.

PR : I have a strange sort of thing about the fortnight.

T: Yes what's that ?

*honoured voice*

PR: If it takes a week to walk a fortnight ,how many apples in a barrel of bricks ?

T: And again (laaughing) just see if you can work this one out. Where did you come up with that?

PR: My dad told me.

T: So what do you think that saying might be playing with, so just hear him say it again. PR: If it takes a week to walk a fortnight, how many apples in a barrel of bricks ?

T: Does that make sense ? It makes you laugh doesn't it. It's ridiculous but what tradition is it playing with ? Is it poking fun at certain mathematical questions ? What sort of question does it remind you of ?

SO: A problem question.

T: Yes but can you answer that problem question ?

SO: No



T: No and why not, they've given you the wrong information haven't they? I'll thank you for that. Now there's something else that there's seven of that we talked about in our reading lesson today. *recap.*

AC: \*\*\*\*

T: That's a good guess but no.

KL: Seven deadly sins

T: There are seven deadly sins (*revue.* *Question.* writes 'deadly sins' on board). So has anyone heard

of the deadly sins? Can anyone tell me what they are? We won't dwell on it (smiling). It's a Christian tradition but it's quite interesting. Umm what were they?

CR: The seven things you did.... I can't remember

T: Sins suggest that they are good things or bad things?

Chorus: Bad things. *loaded question.*

TP: Stealing

T: Well that would actually be the Ten Commandments.

T Assis: Deadly sins are more character traits aren't they? Things that you might do that are not good.

TP: Anger, gluttony, sloth

T: Gluttony (on board) is what all you think about all day is food. *more + explanation*

Ch:.....

T: Sort of people who would spend a fortune on a particular bottle of wine. It's not to do with whether you are ....or this, it's whether you are obsessed with expensive luxurious food

Ch: Covens or something

*person + connection*      *prideful*  
T: Covetousness, what does that mean, do you remember what that does?

PL: Wanting something someone else has

*add*  
T: Good, so if you're jealous of someone else's money or their material  
covetousness. What else .... That's three. What else... lust which was to love  
someone physically, not care for them emotionally..... Oh vanity and pride (on  
board)      *add knowledge.*

PL: Vanity wasn't in that.

T: It wasn't. Do you think .. pride?(on board) do you think pride, let's look it up  
then (gets dictionary). Pride if you have an inaccurate belief in yourself      *consideration*

T Assis : Then there's a couple that are quite alike.

T: Oh sloth which is laziness.

PL: That's what we already had. I said that one.

*T. means to date*  
T: So seven in our culture seems to be a key number because it's the days of the  
week but it also has the strange tradition to do with sins and virtues.

Ch: Miss is 4 a biblical number because you've got 3 and you've got 7.

T: Yes, why is 3 a biblical number, there's another number that's very  
important.      *honored word*

Ch: Devil

T: It's the devil, yes but why was 3 important?

Ch: So I think religions look at numbers and they make them powerful, their  
important.

SF: Ummm in Macbeth they said that the sloth was a hag or something.

T: Yes now then.

T Assis: Sleep from the .....witches.

T; Is that the animal sloth ?



T Assis : There is an animal sloth.

T: What happened traditionally, there are , see if I can find you some pictures but artists drew the epitome of each of those sins so a big fat (hands in the air) man for gluttony.... and lazy. Why do you think they call a sloth a sloth.

Ch: A sloth ?

T: A sloth which is lazy, why would they call a sloth, a sloth. Because it's very, very ... it looks like it's very lazy.

PL: It can swim like that.

*builds up to task.*

T: So the point of all that is that 7 is the times table you're going to learn and it's an important number because primarily because it calculates the days of the week. So if they say to you it's three weeks you can calculate it's 21 days. It's a useful times table to know because it's the way we apportion out time.

*recep.*

EM: I know ways that if you have difficulty with the seven times table.

T: Oh yes.

EM: You can learn the other times tables then you can reverse it.

T: Oh yes, good give me an example. I f you know the 2 times table you can

EM: Then you can do  $2 \times 7$  and  $7 \times 2$ .

T: (nods and smiles)

CL: And you can do  $3 \times 2$  and  $2 \times 3$  .

T: So hands up who thinks that the 7 x table is quite hard to learn?(A few children put their hands up ) Ok but once you've learnt it it's a real help so that's your aim this week, You'll see that in your sheets here it's all to do with 7s. But use EM's tricks if you're not sure what  $7 \times 5$  remember what  $5 \times 7$  is ( showing papers)

Ch: Miss what do you do?

T: You have to multiply each number by 7 so  $3 \times 7$  is 21,  $5 \times 7$  is 35,  $4 \times 7$  is 28,  $2 \times 7$  is 14. Good that's what I need you to do for me tonight. OK, now let's get back to yesterday's work.



**TA/Mathematics Observation 9      Teacher with 12 year 7  
pupils introducing 'Probability' in Maths.**

Transcript conventions.

**bold print**      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials.

T: Now yesterday we were talking about probability, do you remember?

Ch: Oh yes

T: Now can anyone tell me what probability was all about. CR

CR: Estimating a guess.

T: It's estimating a guess, now is it just a given that you pluck out of thin air?

Ch: It's like gambling like horses you have to know which horse.

T: Right you have to know your options.

Ch: You have to ....

T: It's what we call an educated guess you see what the possibilities are and

then you make your judgement on what the options are for you.. So what

happens, HA and CA(absent earlier) is that each of the little group was given

an activity, so this group (pointing to yesterday's worksheets) for example, had

to choose a card from the pack and shuffle right? and every time they picked a

card what did you do CR.?

recaps +  
question.

probing qu.  
+ information

recaps child's  
response but  
with praise

gives info.

recaps for  
absent child



CR: We wrote down what colour it was, black or white or red and the suite.

T: Umm, yes so it's hearts, clubs, diamond and spades. Whether it was a wild card or not. Good. The next group had throwing a dice. So they threw 2 dice.

AL: what did you do when you threw those two dice?

AL: Added the numbers.

T: So you added up the total of the two dice.

AL: And you \*\*\*the new number

T: Jolly good. Is this JA's. (holding yesterday's work) Could you explain what you did here? You had 5 dice.

JA: You had to throw the dice and count how many red dots were there. (T nods)

T: So what I'm going to do now, I'm going to give you a graph from a group that you weren't involved with. You won't be looking at the graph you made.

And I've got a series of questions that I want you and your group to answer just

by looking at the graph. Now this is going to take some team work. You're

going to have to help each other out. I don't want you to come to me or Miss for

help, I want you to see if you can find the answers yourselves. So read the

questions very carefully and think 'How can I get the answer by looking at this

chart?' Good, so it's going to take me a little time so do you have your Maths

books? Could you have that ready .... You're sitting next to

peer  
involvement

asks child  
to recap -  
checks  
knowledge -  
deconstructing  
reasoning.

How to  
obtain  
knowledge



LM/Mathematics Observation 10 12 Year 7 children

teaching 'shape' in Maths.

Transcript conventions.

bold print      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials.

T: Right can I have everybody sitting up smartly, OM, chair under your desk now. (children noisily entering classroom) Right, yesterday you made two what,? What did you make, some of you havent finished, some of you have. NE what did you make?

guess  
clue  
recaps

NE: A cube and a cuboid.

T(writing cube and cuboid on the board) Right you made a cube and a cuboid.

MO what's the difference between a cube and a cuboid?

MO: A cube 's got all the sides this end.

T: Right (hesitating)

MO: And a cuboid has them on the sides.

T: So what shape do you actually find on a cuboid?

MO: Ummmm

T: Tdraws a cuboid on the board. You find a square here, all the sides are square, what do you actually find when you make a cuboid?

MO: Ummmmmm

revolve  
invites another  
child with  
question

'supports'  
the child so  
he can think  
aloud.

still question  
to encourage  
child to  
think in  
another way



T: (draws as she explains) You find a square here, all the sides are square, what do you actually find when you make a cuboid is that some of the sides are what?

MO: Some of the sides are different because one's long.

/ loaded question here.

T: What do you call that long side ?

MO: A a

T: (T writes 'rectangle' on the board and points to it.) a re

MO: A rectangle.

T: A rectangle, this is a square because all the sides are the same. This is a rectangle because all the sides, two of the sides are the same and two are different, they're shorter. Now yesterday, we had an interesting discussion about the angles, somebody said that the angles would be different in your cube and your cuboid.

/ recap + prevents failure.

Ch: I said about angles but I didn't say they were different.

T: Ah so you just said they had angles.

Ch: Yeh they have all the same angles in a cube but I didn't say .....

T: That was my misunderstanding but what do we know about the angles in the cube and the cuboid ?

/ question + asks to compare. Forging difference

Ch: All the angles they're all right angles.

T: They're all right angles. In that case, AN how many degrees are there in a right angle ?

/ Question + builds on this.

AN: 90

T: 90 (drawing right angles on the board) and you'll find that all these angles in the cuboid will be right angles., excellent but we're not really interested in



angles that was just a conversation we were having what was it we were working out ?

3

checks child knowledge.

Ch: The surface, we were working out the surface.

T: The surface what

question

Chorus: Area

T: The surface area so TO how can we do that?

TO: We times.....

T; Sorry ?

TO: ... the area we times.....

T: Ok, tell me TO how do we work out the surface area of one side ? do you remember we can only work out the surface area of one plane.

Graduated question with some instruction

Ch: Oh yeh, you add together the two the width and the length.

T: Who thinks he's right ? not a lot of support. Who can help him out here, how do you find the surface area of one side AN.?

decide to involve peer

AN: Ummmm one times six

T: Tell me how to work it out rather than use numbers.

AN: You times it.

T: Times what ?

AN: Times how many sides there are.

T: Well OK . Surface area of one side, it's all we're interested in. (draws a square on the board) Supposing we're doing this cube here. (points to cube on the board). TO really pay attention because you were close but I want it really accurate.. You were doing this yesterday, most of you have actually done it so I'm finding it rather strange that you aren't .... At explaining it. (Points to BR)

Then another task

BR: If it's a cube you measure one side and you times it by six.

*guided participation*  
T: OK but what I'm asking for BR is is how you find the surface area of just one face of this cube. I don't want the whole cube at the moment.

I'm just talking about one. (points to one side).

BR: You just measure the side of it.

T: Right.

BR: and....times six.

T: Why only to find only the surface area of one side do you do that?

ER: To find the surface area of all the other.

T: Right, listen to the question BR. How do you find the surface area of just one face? forget about the other five. I only want the surface area of this one at the moment. How do I do that? I think everybody knows but I think

Ch: Just measure it.

T: Tell me more.

BR: Measure all the sides.

T: Of here, here, here and here (points to sides of cube). What would that give you?

Chorus: Perimeter

T: It will give you the perimeter. BR if you measure that and that and that and that it will give you the perimeter of that square. I don't want the perimeter I want the area. Sh, I'm sure you do but (addressing a child calling out) I won't ask you if you're calling out. TO, back to you.

TO: Once you find out how many centimetres each side is

T: So this is your square, (draws a square on board) so you find out, say that was four (puts 4 on one side) and that was four (writes 4 against the other side) what would you do

4

does not reject BR but ...

she persists, does not resort to simply giving the answer

questions to establish what they do know.



TO: You would times that you would times them together.

T: Excellent. You would times them together, so  $4 \times 4$  (on board) is what TO

TO: 8 ummmmm

CA: 16

TO: 16

T: Thank you CA, don't call out please don't call out. 16. Let me show you why.

If you think about it, if you had squares on your box and each of these were centimetres (draws squares) we did use square paper to make the cubes, the net, the net remember the flat plane of a three dimensional shape is a net, so TO if you 4 and 4 would you have the whole area of that square?

TO: No

T: No, because you'd only have . If you add 4 and 4 you only have that don't you (pointing to one side then the next) Is that what we're after TO?

To: No

T: What are we after?

TO: We want the whole of it.

T; We want the whole of it.

T: We want the whole of it, so to find the area , it is the length times width (on board). I think we were doing this yesterday. So the whole area is is length times width and then you have the whole of the surface area. Now that's one side ,how do we find out the surface area of the whole cube?

Ch: If that's the answer to one side then if you times all that together.

T: Ummmm

Ch: On all of the sides then you'll

5

praise  
after  
considerably  
help.

Erasmus

asks a  
question &  
expose the  
picture

ing.

fading to  
elicit more.

T: So you think I should do times all that together so  $4 \times 4 \times 4 \times 4 \times 4$  (on board)

Ch: No

T: What do you think then

Ch: Because there's 16 in each.

T: Right, so you know one side is 16

Ch: And you know that there's six sides so  $16 \times 6$

T: How would you work out that sum ? AN

AN: If you, basically it's just 16 ,6s

T: So you could, what would you do if I said to you AN right now how would you work it out ?

AN: Well I would 16 16s

T: 16 16s?

AN: No, 6 16s.

T: Ok, and

AN: Adding them together. (T writes  $16 + 16 + 16 + 16 + 16 + 16$  vertically on board)

T: Good how also could she do it which is easier I would say.

Ch: Well you could ...out the sum.

T: That's what she did.

CA: No.....so adding times.....then you do  $6 \times 1$  is 6

T: Come and write it on the board. Show me what you mean TO, are you really switched on, are you paying attention because you're not looking at what we are doing.

6 / guided participation exposing his reasoning

Co-constructed

Questioning by reviving an erroneous response.

Co-constructed

T: (CA at the board) Well done CA (CA has written  $16 \times 6$ ). So you could do it by doing a long adding sum which is a bit time consuming or you could do it by..... sum. (points to the board)

Ch: Yes

T: TO, could you do the same to work out the surface area of the cuboid?

TO: By working out the face and then

T: And timesing it by 6 ?

TO: No because no on eface is the same.

T: Right so in this case what would we have to do TO?

TO: You'd have to work out each side. You'd have to work out on e side and work out the shorter side.

T: Yes

TO: You work out the ones on the side which are the smaller ones

T: Yes how many of those have we got ?

TO: Ummm, two

T: Good

TO: And you've got 4.....

T: You'd have to do it carefully, you'd have to do it ddifferently, you do it.....and times it by 2 (poinint to the end faces) and you could work out one of these. MO and times it by what, one of the rectangles what would you times the rectangle by, how many have I got ?

MO: Ummmm what do you mean, how many

T: Of a coboid, if you're following what I'm saying you'd know, how many, we've decided that these snd pieces you've got two of those you could work out

/ guided  
participati  
g dismptive  
check.

/ establish  
understand

/ contingency

one of them and times it by 2. But these sides if you worked out one of these

What would you need to times that by ?

MO: Three

T: Three? Why three?

MO: Cos there's three sides like that

T: ( T picks up a paper cuboid which one of the children had done previously and takes it to MO) Because there's

MO: Two

T: Well on this one this one's a bit strange (she discovers that it is a badly made cuboid) you'll have to be careful because this one's 3 different sides, it's got 2 the same ,2 the same but in the one I've drawn here how many has it got the same MO ? One two three

MO: Four

T: Four, but in this one (holding the badly made cuboid) you're going to have to be careful because they're not all the same. You have to work out 3 different areas. OK last thing before you get on is this. Two people yesterday got to this. Stage (holding up worksheets) .CA and AN, What I'd like you to do is to draw a sketch of your cube, then I want you to draw a sketch of your cuboid and work out the surface area of your cuboid and I want you to record it on squared paper like this, very,very neatly

bridging  
gap  
between wh  
MO knows +  
needs to  
know



*Mutual Construction of Knowledge*  
*Negotiating Failure*  
*Teacher as Mediator*

APP 11

1

**MX/Mathematics Observation 11 12 Year 7 children**

Transcript conventions.

**bold print**      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials.

T: (Writing on the board) Sphere,sphere sphere

Chorus : Shere,sphere, sphere

Ch: Sphere

Ch: Sphere

Ch: Sphere

Ch: Sphere

T: Now we're going to have a look at this shape (holding a cube) now I'm looking at Mathematical language. Now I've looked at the word 'face'. I've used the word 'curve' (points to these words on the board)

recap +  
and  
elicit

Ch: I know what it's called

T: AL

AL: It's a cube and it's got lots of sides and it's got lots of corners.

Ch: It's like a box.

AL: It's like a box.

T: It's like a box it's got lots of sides.

Chorus :\*\*\*\*..

T: No calling out, I'm going to see if anyone's got their hand up.

AL: No curved faces, good. Now can you do, can you tell me how we classify the shapes (giving a cube to a child and others to other children) you can share onr. Look at it in detail. Look at it carefully and when you've thought about it put your hands up. I must say AL (TO was not given a shape but is waiting patiently) I haven't heard a word from TO, MI's doing his then he'll pass it to you when he's finished.

AL: But, but

T: Right anyone, tell me about the number of faces FR.

FR: Ummmmmm eight

T: Number of faces, have another look, have another look MI.

MI: Six

T: Six faces (writes on the board) Now what else can you say ?

Chorus: It's got eight sides, eight corners.

T: Eight sides, Wow. I'm going to introduce you to another word, mathematical language now. Vertices (writes vertices on board) . One vertex (on board) one corner, lots of vertices..... eight vertices, eight corners, good. What is the shape of each of your faces ?

Ch: One on each side, it's more of a cube. Oh I know

Ch: I know cos it's flat.

Ch: It's not flat.

T: TO . Six (points to board) square faces, eight vertices, very good. Now that's very important, you'll see why it's very important in a minute. We're building on information here (writes on board) six square faces.

Repeats  
question —  
focuses, gives  
child  
opportunity

repeats word  
+ asks further.

repeat



Chorus : .....

T: That's a cube.

Ch: I said that.

T: I wasn't going to introduce this but I will, we actually call these edges

(holding a cube and pointing to the edges) and did you count 12 ?

Ch: Yes.

T: We'll look at it in more detail later on. I won't bring them into the lesson today. (holds the cuboid) hands up (turning the cuboid around) sh sh sh TO

TO: It's got six and it's a rectangle.

T: It has six square faces ?

Ch: Rectangle.

T: It's a rectangle.

Ch: six

T: Look carefully

Ch: I know.

T: FR.

Fr: It's a box.

T: It is a box, in a different shape. We get boxes in different shapes. It is a type of box. We have a mathematical name for this.. It comes from cube but it's not, it's a cuboid.

Chorus: Cuboid

T: (writes on board) You've heard of it, you've heard of it Sh sh MI, MI. I think TO's just said something. I didn't actually hear what it was, it might have been something important.

TO: It has two square sides.

REA

menting  
silence.

trial  
function  
knowledge

deliberate wrong  
information given

infer that it's different from a  
cube

T: Now using the mathematical language you've met so far (pointing to the board) have I used the word 'sides' so far ? What have I used ?

Ch: Faces.

T: Good, two square faces.

*/ used elicitation*

Ch: Four rectangles, rectangular and how many vertices ? do you think? LU.

*/ praise after cues.*

LU: Two

T: Carefully

LU: .....

T: (pointing to the board) Try to remember that word , we're building up on knowledge.

*/ ZPD.*

LU: Nine

T: You're very close.

*/ ZPD*

Ch: I know what it is Miss.

T: Are they likely to be an odd number ?( tone is questioning)

Ch: Seven.

T: FR.

FR: Four?

Ch: Seven.

T: (T points and goes from one face to the other as if counting)

Chorus: Eight.

T: ( smiles) So eight vertices (on board, she then picks up a pyramid) Sh sh sh

I'm not likely to choose someone who's shouting out.. MI.

MI: ..... It's a three based pyramid.

T: Very close, it is a pyramid, it's a triangular based pyramid. It has a special name and it begins with a 't' (writes 'tetra ' on the board) Tetra, eight.

*Presenting failure*

Ch: Tetra.

T: Tetra

Chorus: Tetrahedron

T: Tetrahedron(holding the pyramid) who can tell me why I'm interested in this information ? (points to the board) faces, vertices.

*cried  
response*

Ch: Miss I know.

T: I'm going to choose people who put their hands up. FR?

FR: It's got one flat surface and it's got

T: One flat surface ?

*makes  
him  
reconsiders.*

FR: Ummmmmm four

T; Four surfaces. What can you tell me about each face. What is the shape of each face ?

Ch: Triangular.

*reduces  
degree  
of freedom*

T; (nods and writes on the board) four triangular faces, good Can you answer the next question ? Vertices.

Ch: Nine, nine vertices.

T: Vertices (holding the pyramid) the number of vertices if you'd been listening hard and not listening to other people.

Chorus: Ten

Ch: Eleven ?

T: TO ?

TO: Twelve

T: Vertices

MI: Five.

*repeats  
indicating  
correct answer  
not yet given.*

T: (Pointing and counting on the pyramid)

*still, doesn't  
give it but  
was further*

*red  
imitation*

Ch: Four

T: Four (on board) vertices. Now the rule is that if you don't understand something at first you need to listen extra hard if you're going to understand.... Extra hard, you're going to have to concentrate. Now I want you to have a look at that information on the board. I'm going to write it out and you're going to be reproducing it in your books.

if we  
this is  
challenge  
the  
hidden



**IN/Ma 12. Teacher with 12 Year 3 pupils teaching 'shape' in Maths.**

1

Transcript conventions.

bold print      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials.

T: DA, you are not supposed to be calling out at me, remember that. So let's stop SA and we'll come back to that another time (wipes the board). We're going to do something new today. And there's going to be a new word that we're going to learn. It might not be new to all of you and the word is sym met ri cal. Now can anybody help me with that word? Symmetrical, what does it mean? Have a think. I'll take that pencil away from you ME.

ME: Something that's kind of all the same.

T: Very good. Something that's kind of all the same. Can anyone tell us a bit more about the word symmetrical or symmetry.?

JA?

Do you remember when we made these glasses? Children in my class. Now I used the words, the glasses had to be symmetrical and what did you actually have to do, LU?

LU: the same.

reduces  
degrees of  
freedom  
purposefully  
with hands.



T: On both ( her palms are held together and she draws them apart)

LU: Sides

T: Excellent, so if something is symmetrical, CO sit down, it has to be the same on both sides. So I'm going to write that word (writes on board) , quite a long word, sym met ri cal. I've got some paper here(holds up a sheet of A4 paper).

Now at the moment that's just one flat sheet of paper.. If something is

symmetrical it does have a fold line because both sides have to be exactly the same. Now this is a symmetrical piece of paper because I can fold it exactly in

half(folds paper in half) there's my fold line DA, and when I open it up it's

exactly the same on both sides.

*co-constructing knowledge*  
She is modelling the task unknown to the child

SA: It's like a book

T: It is. Now that's a symmetrical shape because (holds and points). It's the same on both sides. I could have a symmetrical pattern and the pattern would be

the same on both sides. I might actually just do that.(picks up a pen ) I'm not going to do a pattern as such but if I show you (puts two blobs of paint on one side of the fold)there

Chorus ...(laughing)

SA: Why don't you

T: Don't call out. What do you think's going to happen when I fold this?

Chorus: I know I know

T: Sh sh <sup>S</sup> what's going to happen?

*Question for SA who has expressive language problems.*

SA: They will when you shove it, when you open it you'll see another one on the other side . It's like the paint brush but you pick it up(points a finger to the

middle of his palm) and you shut it(clasps hands together)

*SA mimics the teacher,*

T: Well shall I shut it and see what happens then?

*She accepts his explanation*



Chorus: Yes

T: (folds the paper along the fold) Right, just need to ease it down. (presses the paper along the fold)

Ch: Doesn't always happen.

T: And when I open it up

SA: It worked.

T: The pattern is symmetrical the pattern is exactly the same on both sides.

Now DN's got a question well done DN he put his hand up.

DN: When you want to triangle it, it's like a train now, you want to point it

up.....a square..

T: Well sort of, I'll tell you what I'm going to show you next. Now this is a

triangle (holds up a paper triangle) Now I would say to you, is this a

symmetrical shape? Can I fold it in half?

Chorus: No

T: Will it have a fold line? What do you think CO? CO you're not really

looking so what I'm asking you is do you think this is a symmetrical shape? Can

I fold it in half?

CO: Yes.

T: Yes so we can say this shape, the triangle is symmetrical because it has a

fold line and both sides are exactly the same. Not all shapes work like that.

(holds up an unsymmetrical paper triangle)

SA: Ummmmmm

T: Don't call out, LU tell me.

LU: It is another sort of triangle.

T: It is another sort of triangle.

SA: But it's

*ignores SA*  
T: (picks up the first triangle) But if we compare it with this one. Now DN, do  
*Q contains 1/4 of the whole.*  
you think I could fold this one (asymmetrical shape) in half so that both sides  
are the same?

DN: No.

*demonstrates*  
T: No, shall we have a go? Well I'll have a go, a bit difficult. I'll fold it like that.

Chorus; I know why

*further demonstration.*  
T: Don't call out, or I could fold it like that (folds another way) I can fold it but  
when I open it up can you see that side is smaller than that side so this shape is  
not a symmetrical shape.

*imitates* SA: (gets up and points to shape) That bit is like thinner because like if it  
would fit it would have to be like (points to symmetrical triangle) and then it  
would fit properly because.....a bit longer than that.

T: That's right because it's not symmetrical. But we do have other shapes (holds  
up an arrow shape) that is the shape of an arrow. Now let's have a bit of a guess  
here, do you think that's a symmetrical shape?

Ch: No, no, yes

*keeps to help the children.*  
T; To find out if it's symmetrical what do you have to do?

DN

DN: Fold

*reminds of Ques.*  
T: Fold, what about each half of the fold (indicates with hands parting in both  
directions) they have to be the

*high instructions* DN: Same

T: They have to be the same. Now DN do do you think you could fold this so  
that both halves would be the same when I open it? *holds up paper arrow*

*expressive  
language  
definit  
child*



DN: No.

T: No, can anybody come up if they think they could. ME your hand went up.

SA: Can I do it after ?

T: Well I'll see how ME gets on (ME goes up) Now ME has got to think really hard. Turn and face the class. She's going to fold it so that when it's opened both halves will match. (ME tries to fold the paper arrow) It's a bit tricky for your fingers.

T: Shall I help you, you've got the right idea.... Fold line with your finger.

Right, hold it up for everybody to see. Hold it up folded . Wow look at that

SA: Unfold it.

T: Now unfold it . Now can you see everybody? (holding a paper triangle)

SA: It's the same one.

T: Can you see what's happened? ME: folded it down the middle (points to the fold) and this side matches exactly that side because you can see that when she folds it over. This shape has got one line, it's called a line of symmetry. What if she'd folded it the other way?

TB: It would be the same..

T: Shall we fold it the other way? I'm thinking about..... Now (folds it horizontally) it's not symmetrical that way is it ?

CO: Yes but Miss I've got an idea.

T: Tell us about it, but it is symmetrical this way. So (shows previous shape) shapes can be symmetrical just one way (CO goes up and T gives him a shape) Turn around so that everybody can see what you're doing (CO folds the shape)



T: That is clever, but what you've done is make a little symmetrical shape (CO has folded the assymetrical shape down the middle so that it is now symmetrical). You've just made it shorter really haven't you? Which was quite clever. It's symmetrical that way because both halves match. Yes DN.

DN: I'll do one.

T: I'll tell you what I'm going to give you something else to do because I'm going to give you all some pieces of paper and I want you to make your own symmetrical shapes. So if you go and sit down and you can come and help me in a minute DN. Now the way to make a shape symmetrical is how (holds up a rectangular piece of paper) Right, (DN walks up) Tell them what you're going to do.

*allows  
child to  
demonstrate*

DN: I'm going to fold it. This is a square.

T: So you're going to fold it like that now you're going to make your own shape that happens to be rectangular, so first of all DN is folding it really carefully down the middle at the moment, if you hold up your shape. Now if you wanted to make a symmetrical shape, thank you please go and sit down, at the moment I think I'd like a symmetrical shape that's a bit like a circle. How could I make it ?

DN has decided that's the first step and you could use a pencil

DN: and it's like a letter box.

T : Yes so I've got a pencil and I've got this piece of paper like this, now what can I do with my pencil to help me ? (She holds up the paper rectangle folded down the middle) .

JA: Just draw a circle

T: Well I could but I'd really want to make sure that when I have my shape LU, that finished that side is going to be the same as that side, that's a bit of a clue, so DN.

DN: We don't want to ...very lazy, you fold it, you cut it until two comes out.

T: Well two will come out if I draw something on one side, are you looking ?  
Shall I do it for you and then you'll see what happens ?

SA: I know what happens.

T: Do you, right, for instance, this is the fold line here. So the pencil will have to go on the fold line and I'm actually going to do a heart.(she has drawn a fold line with half a heart on one side) So I'm going to make a shape that's like that, I'm making half a heart. Now I take my scissors and I cut around the line. I'm cutting from one side of the fold to the other.

SA: Then you open it.

T: Then when I open that up (demonstrates) either sides are exactly the same, so that DN tells me it's symmetrical because both sides match.

SA: Turns it upside down.

T: Ok I'm going to give you each some paper and I want you to start off by folding it in half beautifully and then I'm going to come round with a pencil and you're going to draw half of whatever shape you'd like. I'm going to help you by showing you on the board so (demonstrates) this dotted line is going to show you where the fold is and with your pencil you're going to draw a shape. It might just be something very simple like that.

PA: On a soldier, a half soldier.

T: Or you could do half a person, that's half a head, an arm, and one leg so you would cut around there (pointing to the edge of the drawing) . I don't mind what

it is but you really are drawing half of your shape. Now CO to stop you making that funny noise you can come and give out the paper. One piece for each person, are you going to do it very nicely for me? You need to be thinking what you're going to draw and then, sit up then , CO can put it on your thing. Some of you might have a pencil in your tray. Can you get it out ? (hands out pencils)

Chorus.....

T: Can you just stop, look and listen. Just a reminder here. I want you to fold the paper so that the long sides meet (fold a paper rectangle in half showing the edges meeting) . When you've done that smooth it out and then think about the shape that you're going to draw. Now listen very carefully. Now make it a simple shape, remember that's the fold. So you take your pencil and draw out from the fold. It can be a pattern shape. Well done so that's your fold (points to a child's shape) and you take your pencil and you think about the shape you're going to draw. So have your pencil starting up at the fold, but it has to be quite simple because you might not cut it out otherwise. Well done, that's a star for JA and DN and LU. Now you can do a very simple shape because look (showing the class JE's shape) . Now CO that won't work, or you can tell me why, is it along the fold ? You could do a very simple shape because you could just go like that (out of view) . As soon as you've done your drawing show it to me and I can say whether it will work. (she walks around the room looking at people's shapes) Now when you've finished your shape you can come up here. You can just put one blob of paint in the middle on one side and then fold it over and see what happens. Excellent, now if you'd like to, now put one blob on

there(shows a child) , close it and I'll put it on the board . You can take a second.

SA: Look what I did

T: SA , I'm going to put them on the board. CA and then everybody can see everybody else's. Now up here I've got one or two of your shapes. They're quite small. I'm going to take this one off the board to show you ( hold a heart shape)

Now if we have a symmetrical shape what do we have to remember about it that we are able to do what to it ?

KI: Open it up.

T: Well not open it up, the reverse (she closes the shape) What am I ding to this one ? It begins with a 'f'

KI: Fold it.

T: I'm folding it, so symmetrical shapes have a fold line. Now the fold line for this one CO (playing with his pencil) is where ? Come and show me.

CO: In the middle (goes up to demonstrate)

T: Good, so you are paying attention. I'm going to use this felt tip pen just to make the fold line stand out more clearly. Everybody look. (holds up heart) that's the fold line. Now tomorrow you're going to have your shapes back and you're going to draw in the fold line because that's really inportant. Without that we wouldn't know if our shape was symmetrical or not. Right, very well done, all of you . So what do we need to prove that a shape is symmetrical ? We need a (points to fold line)

Chorus: Fold line.

T: Very good, now we're going to tidy up.



DU/Mathematics Observation 13. 12 Year 6 children

1

Transcript conventions.

bold print      Emphatic speech

\*\*\*\*\*      Unclear speech

ch      Unidentifiable child.

The children are denoted by fictitious initials.

Woods  
T: Right, which team is ready to get points today. You will very soon not be in any team( warns a child in the front) . Right can you turn to the front please. Sh,sh . Now ...team is waiting to get close (points to the board where teams team points are allocated to teams A and B) Now I'm going to put a word up and this came up a lot in your mental arithmetic books last week and other things we do and I want you to give me a meaning for this word. I'm just going to write it don't shout it out.(writes 'fraction' on the board). I want you to give me a word that means the same as that. A word that means 'fraction'. You could have the word 'fraction ' in a sentence or you could substitute with a word. (points to a child).

Ch: Divide.

T: No. — in a manner signalling child to think again

Ch: A bit.

T: A bit. Thank you a mark for your team. A bit, what else could a fraction say ? Could I have a fraction of your cake, could I have a bit of your cake ? Give me another word. LU

Ch: Uh  
child aha



LU: Can I have some of your cake ?

T: That's right that's the same as saying fraction, can I have some of your toys(writes this on board) means a fraction of your toys.Right who said that?

Ch: Me.

T: Right a point for your team. Another word ? for fraction, yes ?

Ch: A slither.

T: A slither (writes 'slither' on the board),a slither of your cake.

Ch: A slice.

T: (nods) A slice ,we are getting a lot of words, what about a piece ?

Ch: A slip.

T: No, not quite.

Ch: A fraction.

T: No, another word for fraction.

Ch: A fraction, fraction.

T: Right let's see if we can have a sentence from everybody. Ummmmm we can have a sentence from BE with any one of those words, in any of those words, any at all. Right any one in this team who wants to give us a sentence with any of those words in, not one we've had before, we want another one .Yes.

Ch: Can I have a biscuit, can I have a half?

T: No, I want one of these words.

Ch: Can I have a bit.

T: Of what .

Ch: Can I have a bit of your toys ?

T: Ummmmm you wouldn't say a bit of your toys, you'd say (indicates to other words on the board).

Ch: Some of your toys.

T: Some of your toys, good, fine, great. What about you AL, that's one for you  
,15 (puts team points on the board)

AL : Can I have a bit of your cake ?

T: Can I have a bit of your cake ?, yes, GU.

GU: Ummm can I have a slither of your cake ?

T: Yes ( puts team points on the board) Ok, LU your team yes?

LU: Can I have a fraction of your cake ?

T: Yes Ok, we'll include that one. Yes, Ummmm BE. The word 'fraction' means a little bit., but when we're talking about 'fractions' in Maths , we make it very much more specific. We talk about 'equal fractions' This is how you spell it (writes' equal fractions' on the board) and it means that you're talking about bits that are all the same size. Now we are going to talk about those., I'm going to give you these to look at. Don't say anything yet we're not going into the hall until we've done this. That's for you to give everybody, Miss A (Assistant walks about with a bag of cubes). You don't know what you're going to get yet..... no more than 10 each. (child totals today's points on the board for both teams). Ok, please eit down. I want you to put your cubes in one long line so tht all the ones which are the same colour are next to each other, that's all you have to first of all. All the ones which are the same colour next to eachother, all stuck together.

Ch: Does it have to be the same as that colour?

T: If it's not the same colour the you can't do it.

T and children:.....



T : No these are two different colours really( looks at a child's cubes) Sh, Are you listening ? you want all your cubes in a line so that any of the same colour are next to eachother. Right, stick them together (index finger together) in a line.

.....(very noisy)...

T: Right can we look at the board please ?

Ch: Miss I've already done.....

T: I want everyone to have different amounts. Now I'm going to have some first an demonstrate what I want you to do. Mine is short so it's different. If you can't see properly can you move? OK, can you see that I'm holding up . (holds up cubes stuck together) . This is one strip OK? IT IS ONE ENTIRE STRIP. Now I want you to count how many like sections there are in my strip. Put your hand up when you've counted how many.

BO : Three.

T: No I mean little sections, how many GU ?

GU: Ten.

T: OK I've got ten pieces in my strip. Ten little bits, OK, have a look at them How many little bits ? (points to a child who is playing up) right if you do that you'll have to have a yellow card. How many of my little pieces are white ?

Ch: Two.

T: Two out of how many?

Ch: Ten, two out of eight.

T: OK, I've got two out of ten. (writes this on the board) , are white.

How many yellow ones have I got can you describe that to me ME?

ME: Three.

T: Three out of ?

ME: Ten.

T: So if I add three out of ten which are red how many?

Ch: They're yellow, not red.

T: Oh I'm sorry, thank you, yellow and how many of them AL are blue ?(AL had been disruptive earlier)

AL: Five

T: And five out of ten are blue( writes this on the board). What do those look like ? How would you describe that ? Where have you seen something like that written before ? Can you put everything on your desk please ? You don't need to do anything but put them on your desk AN. OC are you looking at this ? BO could you read that sentence to me BO (points to writing on the board) all along. Two out of

BO: Ten

T: Are

BO : White

T: and I've also got

BO: Three out of ten.

T: Which are ?

BO: Yellow and five out of ten are blue.

T: OK if I take all the colours out(erasers 'blue' 'red' and 'yellow' ) now somebody read that one to me without the colours in it Ummmmmm DO

DO: Two out of ten plus three out of ten plus five out of ten (T circles 2,3 and 5 )

T: And how much does that come to all together ?

guided  
participation  
5

Estab 11/10/11  
Pawson

cf  
Shirley working

Chorus : Ten

T: Ten out of ten. Now when we do them as little bits of fractions we don't call them out of ten quite often we say,  $\frac{2}{10}$ ths, do you remember the word ?

Chorus : Yeh

T: So we're talking about tenths (writes 'tenths' on the board) . Right can somebody read that then? Putting in the word 'tenths'. Who can could read that to me ? Yes.

Ch: Two tenths?

T: Two tenths add

Ch: three

T: Tenths.

Ch: Add five tenths ?

T(nods)

CH: Equals ten tenths.

T: And if I have ten tenths, what do I have ? (holds up the original strip of cubes )

Ch: Ten out of ten.

T: I have ten out of ten. I have the whole thing. So if you see ten tenths you can say ten tenths equals one whole. ( writes this on the board) Yeh? I've got a whole stick there (holds it up) When I've got ten of my sticks back again I've got a whole one. Are we agreed ?

Chorus: Yeh

T: Just one more thing, look at this. Here's my whole stick.(holds it up ) If I break it there can you tell me about the blue ones? ( she has broken the strip in half)

Ch: The blue is five, you can cut it in half and both of the pieces are the same length.

T: So this is five out of ten but it's also , what is the word ?

Chorus : Half

T: A half. So five out of ten is the same as a half. In other words if you have five right out of ten in a test you've got half right and half wrong haven't you ?

Now who wants to describe theirs like this and we'll write it all down. So who would like to describe to me all theirs. Start by telling us how many they've got.

Then you describe it. Ok? DO.

DO : I've got nine pieces.

T: Ok , and they're going to be called ? What are you going to call these pieces ?

(points to tenths on the board)

DO: Ninths because they're nine pieces( T writes 'ninths' under 'tenths' on the board)

T: OK you can say it's out of when you're saying it. Stop making a noise with them please. (T is annoyed)

In fact you two, I'll hang on to these until it's your turn. (T takes strips from two boys in front). OK off you

go DO. Describe the way I did it, so many out of so many.

DO: OK, two out of ten

T: Two out of?

DO: Two out of nine are orange. (T writes this on the board) Two out of nine are yellow, I mean white, one out of nine is blue, one of nine is red.

T: Yeh?

*Teacher 'knew' the answer of with G.W. when T enters the child's world. In making she demands the right answer premises - there are no acceptable alternatives as in G.W.*

*fact  
relation*

DO: One out of nine is yellow, one out of nine is green and one out of nine is black.

T: Oh right, how many pieces should that add up to at the top.

DO: Nine.

T: See what we have, two add two is

CHORUS: Four, Five (T points to one) Six, seven, eight, nine.

T: So that equals nine out of nine, which equals one whole one. We'll say that again, this time we'll call them ninths. So can we read it together?

CHORUS: Two out of

T: No, two ninths add

All Together: Two ninths add one ninth (teacher indicates on the board) add one ninth add one ninth add one ninth add one ninth

T: Which equals a whole. OK DO you get a point for your team. You did that brilliantly. Somebody in the other team (points to GO). Ummm GO.

CHORUS: Me, me

GO: I have ten pieces

T: So the're all called tenths

GO: I have five

T: Out of

GO: Five out of ten, two out of ten (T writes this on the board) Two out of ten and one out of ten.

T: And what should that come to altogether?

CHORUS: Ten

GO: Five add seven, eight, nine, ten



T: So that equals ten out of ten which equals one. Now read it all to me using these words

CHORUS: Five tenths add two tenths add two tenths add one tenths equals ten tenths.

T: Equals (she points to "one whole one" on the board)

CHORUS: One whole one

T: Very good so GO gets a mark for his team. GI

GI: Ummm

T: How many have you got?

GI: Six

T: So your piece will divide into six. Off you go.

GI: One, two, one out of ten

T: Ten? I thought you said six.

GI: One out of six, two out of six and three out of six (T writes this on the board) Ummm

T: Equals

GI: Six

T: Out of six, equals a whole bar. Now read it as sixths (writes six on the board)

Your word is sixths, wait 'till I have pointed

T and GI: One sixth add two sixths add three sixths equals six sixths equals one whole.

T: Right. Can I have DO and GI to the front please, right what's the other way he can describe the yellow ones?

CH: A half

*twisting*

T: Half, thank you, so this bit here is the same as a half (pointing to three out of six) because if you've got three out six you must have half of them. OK GI thank you. Next person. This team now then, LU?

LU: Nine, three out of nine and three out of nine add three out of nine

T: Equals

LU: Nine out of nine

T: Nine ninths which equals

LU: One whole. I have two threes. I can also divide it in threes

T: Do that then, you didn't actually have what you told me then. Oh yes you did, sorry. You can put those two together to make three and that one they're one piece out of

LU: Nine

T: You're almost there. Let me show you what he's just told us. He's just noticed something (she holds up three lots of three colours (so this one is called a third) (holds up one of these) Can you see? That's a third, that's a third and that's a third. You don't need to worry about those little bits now, we'll get on to those later.

Yes  
constituting  
knowledge  
together

Thank you for agreeing to respond to this questionnaire. Please read the highlighted sections of your lesson transcripts and answer the following questions as fully as possible applying each question to each highlighted section.

- 1) What strategies do you think you were using in order to support the child or children?
- 2) Whilst addressing this child what impact do you think this would have on the other children?
- 3) Do you feel that your strategies for supporting the children's learning differ when teaching Mathematics and when teaching Guided Writing/ Creative Writing? If you feel that it does, in what kinds of ways ?

**Any other comments:**

**Thank you for participating. Vireen Middleton**



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- 1) What strategies do you think you were using in order to support the child or children?
  
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have to say my responses were intuitive. But by consideration of what's shown there. I was trying to make understanding easier by giving a real tangible example ie the cat, & the symmetrical picture, Any other comments: hoping that SA's inability to express himself would not be an issue in his understanding of the concept of symmetry.

Thank you for participating. Vireen Middleton

M1584866 Doctorate in Education (01:03 : 03)

As for supportive teaching differing — I'm not so sure there is a real difference both happen to be very visual explanation this time any way.

47 45. JA: It feels cold (stroking the fish, and others join in )  
 48 46. T: Don't press it. How does it feel, how does the surface feel.  
 49 47. PA: Cold  
 50 48. T: Apart from it being cold, it's not just cold, it's something else.  
 51 49. Chorus: Slippery\*\*\*slimy  
 52 50. T: Slippery slimy good. Does it feel rough at all how does the surface feel how  
 53 would you describe it?  
 54 51. SA: It feels a bit rough (stroking the fish from the tail)  
 55 52. T: OK, now do you know what a fish is covered with, their skin is covered with  
 56 53. NI: Gills  
 57 54. T: Well (hesitant, enquiring tone)  
 58 55. NI: By gills I mean um.....  
 59 56. T: The whole skin is covered by something think of something beginning with sc,  
 60 sc  
 61 57. Chorus: Scales.  
 62 58. T: Good, sometimes the scales feel rough, although the fish looks extremely  
 63 smooth  
 64 59. and shiny.  
 65 60. TP: If you like this it feels soft (stroking the fish) and if you down it hurts.  
 66 61. T: Does that feel rough? (stroking the fish) /  
 67 62. PA: When you go up it feels rough, when you go down it's smooth.  
 68 63. T: That's good because in one way the scales go one way they lie flat and smooth  
 69 64. and if you stroke it the other way it's rough like when you stroke a cat.  
 70 65. AL: Like you stroke a dog.  
 71 66. TO: On my holiday my nanny went fishing and \*\*\*\*  
 72 67. T: Did she keep the fish?  
 73 68. TO: She put it back in the sea.  
 74 69. T: Well this is called a mackerel and it came out of the sea and you can eat it. ST  
 75 what  
 76 70. did you want to say?  
 77 71. TP: (shakes his head)  
 78 72. T: Well the thing is people do obviously eat fish. Some people choose to be  
 79 73. Vegetarians. But hundreds of years ago before shops and farms people had to go  
 80 74. out and hunt. They caught fish in the sea and hunted for animals. Without that they  
 81 75. wouldn't have been able to live. So hundreds of years ago that's what people  
 82 76. would have eaten. They could only eat what they could find, wild fruit and berries.  
 83 77. JA: They'd have to be careful.  
 84 78. T: Anyway, so fish was important. Anyway we're going to stop all that now.  
 85 79. TO: ...and mushrooms.  
 86 80. T: (Teacher holds the fish) feels slimy (classroom assistant puts descriptive words  
 87 on  
 88 81. The board.  
 89 82. HM: It feels slimy  
 90 83. T: So HM is right it feels slimy (stroking the fish). You could say that when I  
 91 84. stroke the fish it feels slimy.  
 92 85. Chorus: It feels slimy

- 32 up a pen ) I'm not going to do a pattern as such but if I show you (puts two blobs of paint on one side of the  
33 fold)there
- 34 Chorus ...(laughing)
- 35 SA: Why don't you
- 36 T: Don't call out. What do you think's going to happen when I fold this ?
- 37 Chorus: I know I know
- 38 T: Sh sh <sup>SA</sup> what's going to happen?
- 39 SA: They will when you shove it, when you open it you'll see another one on the other side . It's like the  
40 paint brush but you pick it up(points a finger to the middle of his palm) and you shut it(clasps hands  
41 together)
- 42 T: Well shall I shut it and see what happens then?
- 43 Chorus: Yes
- 44 T: (folds the paper along the fold) Right, just need to ease it down. (presses the paper along the fold)
- 45 Ch: Doesn't always happen.
- 46 T: And when I open it up
- 47 SA: It worked.
- 48 T : The pattern is symmetrical the pattern is exactly the same on both sides. Now DN's got a question well  
49 done DN he put his hand up.
- 50 DN: When you want to triangle it , it's like a train now, you want to point it up.....a square..
- 51 T: Well sort of, I'll tell you what I'm going to show you next. Now this is a triangle (holds up a paper  
52 triangle)Now I would say to you, is this a symmetrical shape ?Can I fold it in half?
- 53 Chorus: No
- 54 T: Will it have a fold line? What do you think CO? CO you're not really looking so what I'm asking you is  
55 do you think this is a symmetrical shape? Can I fold it in half?
- 56 CO: Yes.
- 57 T: Yes so we can say this shape, the triangle is symmetrical because it has a fold line and both sides are  
58 exactly the same. Not all shapes work like that. (holds up an unsymmetrical paper triangle)
- 59 SA: Ummmmmm

Dear Colleague,

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- 1) What strategies do you think you were using in order to support the child or children?

In no. 49 I was attempting to establish a definition of what 'procedural' exactly means? In no 52 I confirmed that 'order' was a good word to use in establishing a definition of word 'procedure'. I also affirmed that the child had made a good response.

- 2) Whilst addressing this child what impact do you think this would have on the other children?

I think the children might have been encouraged to respond themselves on my response to A.H. was quite supportive.

- 3) Do you feel that your strategies for supporting the children's learning differ when teaching Mathematics and when teaching Guided Writing/ Creative Writing? If you feel that it does, in what kinds of ways?

In Guided writing, even though my lesson had a specific framework, you are trying to draw the children out to get their ideas & thoughts. The objective is to help the children structure their own imaginative ideas. In a Maths lesson, specific facts have to be taught.

Any other comments:

Thank you for participating. Vireen Middleton

48. Watch how I spell it. Pro- ced - ur - al writing and that is when we follow a certain
49. Procedure. Now what do I mean when I say we follow a certain procedure?
50. AH: When you've got a procedure it means you proceed in a certain way, order I
51. think.
52. T: Yes, in procedural writing we follow a certain order, a good word to use, order
53. A good word to use (writes on board). If you're going to do a science experiment
54. and you want to prove that water corrodes iron if you leave iron in water long
55. enough it will become rusty. So you'd have water first (writes on board) then you'd
56. immerse your iron in it and you'd leave your iron in it for a certain length of time
57. etc. etc. So you would do it in a certain order. That was an excellent explanation.
58. So it goes in a certain order. Any other points that you can think about in procedural
59. writing?
60. Ch: Mmmm..
61. T: I can't hear dear. We want to pitch your voice clearly dear.
62. Ch: Schedule.
63. T: Yes Schedule is a word that very close, schedule, schedule, but you follow a
64. certain format. Yes, you set it out in a certain way, in a particular way. That is what
65. is meant by following a certain procedure. Now today, not only are we going to do
66. procedural writing we are going to do a particular part of procedural writing. We
67. are going to do a recipe. If you give me time it's not just a recipe with a difference.
68. An ordinary recipe as we know a recipe. Now what is a recipe?
69. Ch: It's how you make food.
70. T: It's cooking. Now we have a recipe What is the first thing you see when you

Dear Colleague,

Thank you for agreeing to respond to this questionnaire. Please read the highlighted sections of your lesson transcripts and answer the following questions as fully as possible applying each question to each highlighted section.

- 1) What strategies do you think you were using in order to support the child or children?

Sensory (feeling)  
social skills (not grabbing) & listening  
memory (for previous work done)  
Sight

- 2) Whilst addressing this child what impact do you think this would have on the other children?

I would hope they would listen. The humour of 'poly' I would hope helped - I wish I had had a picture of a parrot! I would try and keep eye contact with each member of the group.

- 3) Do you feel that your strategies for supporting the children's learning differ when teaching Mathematics and when teaching Guided Writing/ Creative Writing? If you feel that it does, in what kinds of ways?

Basically I would use as many strategies as I could (often depending of the individual/group of children). Guided & Creative writing could use physical/sensory methods, depending of subject. I would perhaps use more spelling rules/bank/phrase bank with writing than I might with maths. Much would depend on the child/children's specific difficulties.

Any other comments:

I tried to remember what we did. I hope it was accurate.

Thank you for participating. Vireen Middleton

AR/Ma6

1. T: Now this might be a little bit different so we listen carefully. My friend Alistaire
2. made this especially for me last night. I wonder what the shapes are. (holds up
3. a canvas bag and shakes it). Put your hands in the bag and pick a shape out. Take
4. one any one, hold it up so they can see. See what you think it is.
5. Ch: Per, per
6. T: P p p I'll give you a clue.....Polly the parrot says lots of words and this shape has
7. Lots of sides. Poly
8. Ch: Polly
9. T: Poly poly. polygon. Polly the parrot says lots of words so polygon has lots of
10. sides. Right you have one. Hold it up and tell us what it is. Well done.
11. Ch: A square.
12. T: Oh dear me well done (hands to the next child) Sh. Are you watching? Yes.
13. Ch: A triangle.
14. T: A triangle. Well done that's right. How many sides has a triangle got?
15. C: Three.
16. T: How many sides has that got? (asking another child)
17. Ch One
18. T: How many wheels has a tricycle got?
19. Ch: Two
20. T: A tricycle
21. C: One
22. T: A traingle's got three sides. A tricycle's got..
23. C: (shouting) One, five, six.
24. T: Three sides, a tricycle, triangle.

They had  
done some  
work on  
polygons  
and I had  
told a story  
about Polly  
The parrot  
who said lots  
of words  
to explain  
that poly -  
meant 'many'  
or 'lots of'



1. Creating inclusive feeling - all - circle - on the floor.
2. Including everybody - waiting for you please.
3. Repeating - Sean Friday.
4. Repeating for CH. - going to tell CH because he wasn't here. She may also have been bringing others up to date because she has ADHD kids here - must ask her how many.
5. Can't make out from the video whether she nodded to this or not.
6. A form of compliment here - your paintings.
7. More praise - really good.
8. Kindly reminders - keep you to remember.
9. Asked question here - which paint.
10. Confirmation - that's right.
11. Praise - compliment - NI's that's nice.
12. More praise - precise indication - across here.
13. Praise with recap - with all the different colours. Well done.
14. More praise - lot of lovely colours / mix and matching.

Possible categories

- ① Praise ② Reminders ③ Indicating ④ Repeating child's words ⑤ Self esteem? ⑥ Doing something together emphasised ⑦ Working in